GIGABYTE
TECHNOLOGY

AirCruiser Extreme N Router

GN-BR33V-RH

User's Guide

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Chapter 1
Getting To Know Your BR33V-RH

Overview

Thank you for purchasing the GN-BR33V-RH 2.4GHz Wireless Router.
The GN-BR33V-RH allows users to share network resources, retrieve emails, download large files, conduct a video conference, and distribute or display digital photos, videos or MP3 files. The GN-BR33V-RH is the ideal networking device for you to share a broadband connection in your home or office. The GN-BR33V-RH gives you a simple, cost-effective wireless networking solution.

The GN-BR33V-RH offers the newest, strongest, most advanced security features available today. Unlike most other wireless routers, the GN-BR33V-RH offers advanced features such as a user editable routing table, Dynamic DNS mapping (allowing you to host a website on your dynamic DSL account), and more. Advanced security features such as WPA2 (Wi-Fi Protected Access) and 802.1x safeguard your privacy on-line, while URL blocking keeps kids safe from explicit websites.

Like all 802.11n/b/g wireless products, the GN-BR33V-RH is fully backwards compatible with 802.11b/g products. This means that you don't need to change your entire network to maintain connectivity.

Package Contents

- GN-BR33V-RH 2.4GHz Wireless Broadband Router
- Power adapter (5V DC, 2A)
- User Guide on CD-ROM
- Quick Start Guide
- SmartSetup 3 Guide
- Ethernet cable – All of the GN-BR33V-RH Ethernet ports are Auto-MDIX

If there are any missing or damaged parts, please contact your local distributor or dealer immediately.

	Using a power supply with a different voltage rating than the one included with the GN-BR33V-RH *may cause damage and void the warranty for this product.*

Side Panel

The side panel of the GN-BR33V-RH Wireless Broadband Router contains all the Router's ports as well as the DC power port and initialization button.

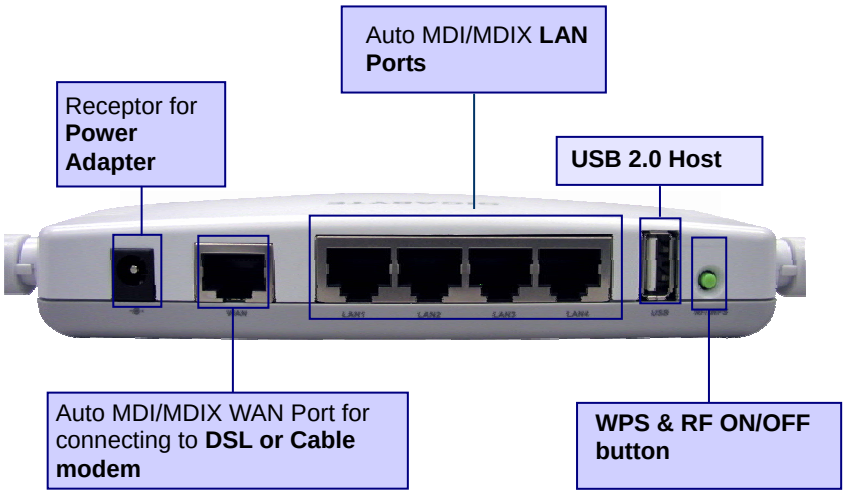

Auto MDI/MDIX **LAN Ports**
Receptor for **Power Adapter**
USB 2.0 Host
Auto MDI/MDIX WAN Port for connecting to **DSL or Cable modem**
WPS & RF ON/OFF button

Figure 1: Router's Side Panel

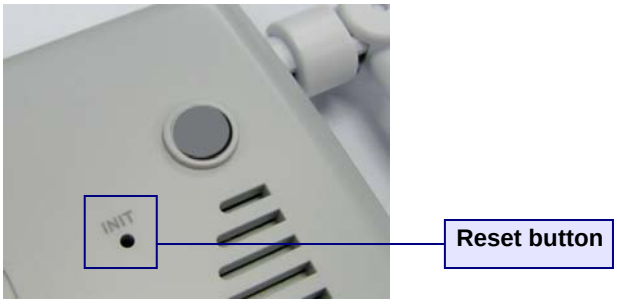


Figure 2: Router's Bottom Panel

INIT (Reset Button) There are two ways to reset the Router's factory defaults. Either press the Reset Button, for approximately five seconds, or restore the defaults from the Management Tools>Router Initialization screen in Router's Web-based Utility.

WAN	The WAN port is where you will connect your broadband Internet connection.
LAN1, 2, 3, 4	These ports (1, 2, 3, 4) connect the Router to PCs on your wired network and other Ethernet network devices.
Power	The Power port is where you will connect the power adapter.
WPS & RF ON/OFF	(Wi-Fi Protected Setup) Push button to enable WPS connection (till 2 minutes, and auto-recovery afrer 2 minutes) Push till 4 seconds to close wireless connection
USB	Support USB 2.0 Supoort webcams with UVC specification. Support one HDD or Flash Memory Storage device (FAT32 or EXT3 file system limited).

LEDs

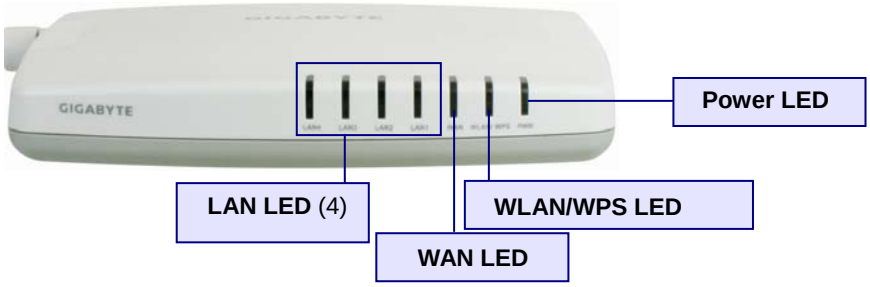


Figure 3: LED Layout

The table below describes the LED indicators on the front panel of the GN-BR33V-RH. All LEDs are green when lit.

LED	STATUS	Color	DESCRIPTION
Power	On	Green	Power is supplied to the Router
	Off	N/A	Power is NOT supplied to the Router
WLAN	Flashing	Green	Data is being transmitted wirelessly
	On	Green	No traffic
	Off	N/A	WLAN status idle
WAN	On	Green	WAN port has detected a wired link with a DSL or Cable modem.
	Flashing	Green	Data is being transmitted / received through WAN port.
WPS	Flashing	Red	WPS function is active. Note: if you hold the button **over 4 seconds**, the router will inactive WPS function.
LAN	On	Green	LAN port has detected a link with a 10/100Mbps device
	Flashing	Green	Data is being transmitted / received through LAN port.

When WLAN LED and WPS LED are flashing at the same time, the both leds display might look like orange color from a distance.
Please be careful about the led color when troubleshooting.

Key Features

- Web based Firmware upgrade
- MDI/MDIX Auto crossover detect
- DHCP server for Wireless and LAN connections
- Port-based VLAN
- USB 2.0 Host to support Samba server, FTP server, BitTorrent client, and UVC WebCam
- Conforms to IEEE 802.11n specification.
- Wireless transmits data rate up to 300 and receives to 300Mbps.
- 64-bit /128-bit WEP encryption, 802.1x, WPA and WPA2.
- QOS WMM, WMM Power Save
- Wi-Fi Protected Setup
- Wireless Bridge WDS
- PPPoE DSL connection
- DHCP client for cable/DSL connection
- UPnP IGD 1.0
- MSN messenger and most Internet applications
- Firewall Filtering
- Virtual Server
- DMZ
- Stateful Packet Inspection
- DoS Protection
- Stealth Mode
- VPN Packets Pass Through (PPTP/IPSec/L2TP Protocol)
- Log Management (Support Firewall/UPnP/WAN Connection Log)
- WAN side Remote Management
- URL Blocking
- DNS Relay and Dynamic DNS
- EZ Hot Spot supports dual SSIDs (One SSID enhance traffic control feature)
- WAN bandwidth management
- Smart Setup for auto configuration

Chapter 2
Wireless Networking

A wireless local area network (or Wi-Fi for short) is exactly like a regular local area network (LAN), except that each computer in the wireless network uses a wireless device to connect to the network. Computers in a wireless network share the same frequency channel and SSID, which is an identification name shared by the wireless devices belonging to the same wireless network.

The Router transmits data to PCs equipped with wireless network adapters, which can roam within a certain radial range of the Router. You can arrange the Router and multiple access points to work in succession to extend the roaming range, and you can set up your wireless network to communicate with your Ethernet hardware as well. The big advantage of Wi-Fi is its simplicity. You can connect computers anywhere in your home or office without the need for wires. The computers connect to the network using radio signals, and computers can be up to 100 feet or so apart.

Wireless Network Layout

The GN-BR33V-RH High-speed wireless Router has been specifically designed for use with both your 802.11n and 802.11b/g products, and retains full backward compatibility. After you have finished setting up your GN-BR33V-RH High-speed Wireless Router, your home network will be similar to the diagram shown at the right.

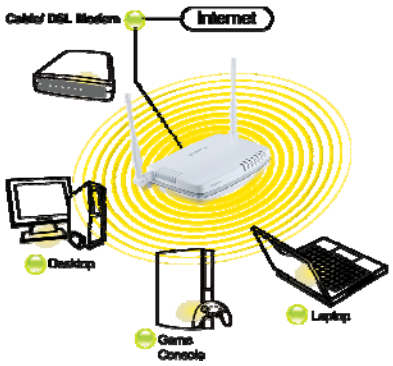


Figure 4: Typical Home Wireless Network

Chapter 3
Before You Start

What You Will Need

Internet

You will need to have an active Internet account, supplied through either ADSL or cable Modem, and your ISP user account and password information. (Your ISP can supply you with this)

Hardware Requirements

A minimum of one PC with an installed Ethernet NIC (network interface card). (If you have a DSL or Cable modem broadband connection to the Internet, you should already have this). If you wish to connect wirelessly to your GN-BR33V-RH from a laptop, a wireless network PCMCIA notebook card is needed, and this manual assumes it is already properly installed.

System Requirements

The GN-BR33V-RH will work with Windows, Macintosh or Linux Operating System. You just need a HTTP standard JavaScript-enabled browser, for example, Microsoft Internet Explorer or Netscape Navigator 4.0 or above.

ISP Configuration Information

Depending on the type of ISP connection you have, you may need one or more of the following configuration parameters.

- ✓ ISP User ID and Password
- ✓ ISP Domain Name Server (DNS)
- ✓ Fixed IP address or Static IP address
- ✓ Subnet Mask
- ✓ Default Gateway
- ✓ Host and Domain Names

If you are unsure of any of these settings, contact your ISP customer service.

Chapter 4
Connecting the GN-BR33V-RH

Overview

You can connect to, and configure the GN-BR33V-RH using either a wireless connection (via notebook PC) or using a wired connection to your desktop PC. It is HIGHLY recommended for the first time setup that configuration be done using a wired connection to your desktop PC as shown in the figure below.

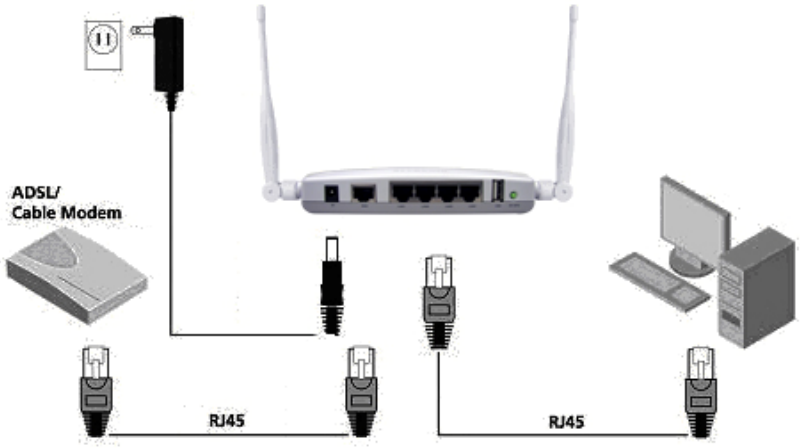


Figure 5: Wired Connection Diagram

Using a Wired Connection

It is suggested for first time setup your Router that you used the wired connection method. It is simpler, and eliminates the possibility of error due to improperly setup wireless connection.

Step 1 Turn off all the hardware devices in your network, including the ADSL/Cable modem by unplugging their power supply.

Step 2 Connect the Ethernet cable of your ADSL/Cable modem to the WAN port of the GN-BR33V-RH.

Step 3 Connect one end of an Ethernet cable (provided) to a LAN port in the side panel of the GN-BR33V-RH and the other end to the 10/100 Ethernet port of your computer. (It does not matter which LAN port you select).

Step 4 Plug the power adapter cord into the router's power jack and then plug the power adapter into a power outlet.

Step 5 Turn on your ADSL/Cable modem. After verifying all the connections, proceed to **Chapter 5 Connecting the Router to the Internet.**

Using a Wireless Connection

Step 1 Turn off all the hardware devices in your network, including the ADSL/Cable modem by unplugging their power supply.

Step 2 Connect the Ethernet cable of your ADSL/Cable modem to the WAN port of the GN-BR33V-RH.

Step 3 Plug the power adapter cord into the router's power jack and then plug the power adapter into a power outlet.

Step 4 Turn on your ADSL/Cable modem.

Step 5 Insert you PCMCIA notebook card, or wireless USB adapter into your notebook PC.

Step 6 If using a GIGABYTE PCMCIA notebook card, SmartSetup 3 will automatically detect your GN-BR33V-RH and walk you through the setup procedure (for more details refer to your SmartSetup 3 Guide). Please refer to your vendor's users manual for connecting to the wireless network.

Step 7 When scanning for available wireless networks, your GN-BR33V-RH's factory default SSID name is **GIGABYTE**. Select it using the procedures described in your particular vendor's notebook adapter users manual.

Step 8 After verifying all the connections, proceed to **Chapter 5 Connecting the Router to the Internet.**

Chapter 5
Connecting the Router to the Internet

Overview

The GN-BR33V-RH High-speed wireless router is configured to work “out of the box”, and the default settings generally do not require any modification. However, for initial setup, you must log into the router and key in your Internet Service Provider (ISP) settings. This only needs to be done once. Your ISP customer service desk can provide you with the all the information you will need.

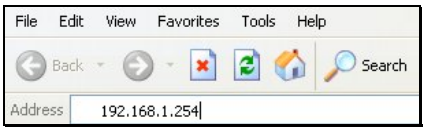
This chapter includes two sets of instructions. First, by using SmartSetup to configure ISP settings in your Router, and then by using Setup Wizard to for users who wish to take more control over the ISP settings

Logging into the GN-BR33V-RH

SmartSetup 3 is the quickest way to securing your wireless network with WPA-PSK, and then controlling your Wi-Fi network with its powerful and intuitive G-EZlink utility. **Please refer to your SmartSetup 3 Guide for more information.**

To login to your GN-BR33V-RH follow the steps described below:

A. In the address bar of your browser, type “**192.168.1.254**” and then press the **ENTER** key.



B. When the password page appears; use **admin** as both the default User Name and default Password. Then click the **OK** button.

C. You are now connected to the Router and SmartSetup will detect your ISP type. If you do not see the menu shown below, click the Smart Setup button in the upper left of the main menu.

After SmartSetup detects your Internet connection, it will report the connection it finds. The possible options are:

- PPPoE
- Dynamic IP
- Static IP

If your connection is not detected automatically, simply press the "Smart Setup" button on the menu panel to activate it.

PPPoE Internet Connection Type

If you have a **PPPoE** type connection, the following screen shown below will appear prompting you to enter the ISP User Name and Password.

Note that you only have to enter the ISP information during initial setup only.

Dynamic IP Internet Connection Type

If you are connecting through a **Dynamic IP** address, no ISP login information is required. Just click the **OK** to allow the router to save the Dynamic IP settings and the Router will reboot, brining you to the Utility Main Page.

Static IP Internet Connection Type

If you have a **Static IP** address, the following screen show below will appear prompting you to enter your WAN IP address, WAN subnet mask, WAN gateway, and DSN information. This information is provided by your ISP.

D. After signing in to your ISP, the router will restart and the web based configuration utility will restart again automatically. You will be presented with the GIGABYTE Wireless Router Main Page shown below.

Your GN-BR33V-RH High-speed wireless router is now fully installed, and you are able to wirelessly share network resources, retrieve emails, download large files, conduct a video conference, and distribute or display digital photos, videos or MP3 files.

Chapter 6
Advanced Setup

Overview

This chapter explains the Advanced Setup options available for the GN-BR33V-RH. The Advanced Setup Screens offer LAN and WLAN Network Configuration, Static Routing Table, Virtual Server, Firewall Rules, DNS Configuration, and URL Blocking. The Advanced Setup screens are available from the links on the Main menu.

The Status Page

On the **Status** page the router's current connection and configuration information is displayed for the following; LAN Ethernet, WAN Ethernet, ARP Table, DHCP Lease Table, Routing Table, UPnP Port Mapping Table.

LAN IP 1 Address Displays the primary IP address being used by the Local (LAN) port of the Router. The default is 192.168.1.254

LAN Netmask 1 Displays the IP Subnet Mask being used by the Local (LAN) port of the router. Default is 255.255.255.0

LAN IP 2 Address Displays the alternate IP address being used by the Local (LAN) port of the Router

LAN Netmask 2 Displays the alternate IP Subnet Mask being used by the alternate Local (LAN) port of the router.

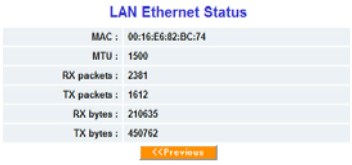
LAN DHCP Status Identifies if the Router's built-in DHCP server is active for the LAN attached devices.

LAN DHCP Start IP The starting IP number in the range possible IP addresses issued by the DHCP server

LAN DHCP End IP The last IP number in the range possible IP addresses issued by the DHCP server

The LAN Ethernet Status Tab

On the LAN Ethernet Status the Router displays the Ethernet Status of the current LAN current connection.



MAC This field displays the MAC address of the portable AP as seen on your wireless network.

MTU This specifies the maximum size of the packet permitted for Internet transmission.

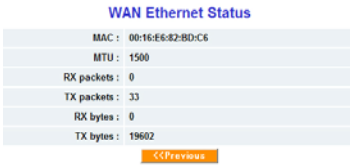
Rx packets The number of data packets received by the AP.

Tx packets The number of data packets transmitted by the AP.

Rx bytes The current bandwidth (receive) on the LAN port.

Tx bytes The current bandwidth (transmit) on the LAN port.

The WAN Ethernet Status button



MAC The field displays the MAC address used by the WAN port of the AP.

MTU The maximum size of the packet sent from your computer to

the Internet.

Rx packets The number of received packets of this port after resetting or manually initial.

Tx packets The number of transmitted packets of this port after resetting or manually initial.

Rx bytes The current bandwidth (receive) on the WAN port.

Tx bytes The current bandwidth (transmit) on the WAN port.

The Wireless Status

MAC The field displays the MAC address used by the AP when wireless.

Rx packets The number of received packets of this wireless port after resetting or manually initial.

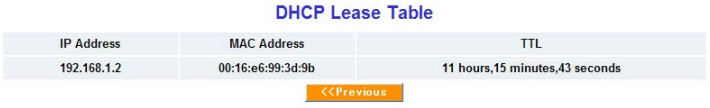
Tx packets The number of transmitted packets of this wireless port after resetting or manually initial.

Rx bytes The current reception bandwidth on the Wireless LAN.

Tx bytes The current transmission bandwidth on the Wireless LAN.

ARP Table Tab
The **ARP Table** displays the associated MAC address and IP address pairs of your local network devices. In the example below, all connected clients will be listed in the ARP Table.

DHCP Lease Table Tab
The DHCP server "leases" out address for specific times (Time To Live) to the various hosts. If a host does not use a given address for some period of time, that IP address can then be assigned to another machine. When assignments are made or changed, the DHCP server must update the information in the DNS server. The GN-BR33V-RH DHCP Lease Table displays the associated IP/MAC assignment and Time To Lease.

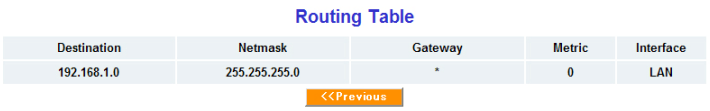


IP Address DHCP assigned IP address on WLAN

MAC Address MAC address of the device with the assigned IP.

TTL The time to live (TTL) in seconds that a resolver will use data received from a nameserver before it will ask for the same data again.

Routing Table Tab
To determine the best path to a distant network, the GN-BR33V-RH uses RIP to always select the path that has the least number of hops. Each router that data must traverse is considered to be one hop. The routing table in a router using RIP contains an entry for every known destination network. The **Routing Table** displays the GN-BR33V-RH RIP routing details.



Destination The IP address of the destination network address

Netmask The subnet of that destination IP address

Gateway Gateway of the destination IP address

Metric Hop count to the destination network

Interface Type of interface used

UPnP Port Mapping Table
The UPnP specification is based on TCP/IP and Internet protocols that let devices communicate with each other - UPnP technology doesn't rely on specific device drivers, using instead these standard protocols. UPnP devices can automatically configure network addressing, announce their presence on a network subnet, and permit the exchange of device and service descriptions. The **UPnP Port Mapping Table** displays the GN-BR33V-RH port mapping and UPnP packet request details.

No. The event number

Status Current status of the UPnP port (enable/disable)

Client IP The IP address of the client utilizing the port

Protocol IP protocol (UDP/TCP)

External Port The external port mapping

Internal Port The Internal port mapping

Remote Host IP The IP of the remote host (if applicable)

Lease Time Length of time the port may be utilized for UPnP

Create Time Time the port was established for UPnP

Description UPnP process

The Network Configuration Screen

The **Network Configuration** screen consists of three areas: **LAN Configuration**, **WAN Configuration** and **WAN settings**.

The LAN Configuration Tab

LAN Configuration
Allows you to modify the LAN parameters, and if you want to enable DHCP automatic IP address assignments, you can enable it here, and specify a Start and End address for the IP range.

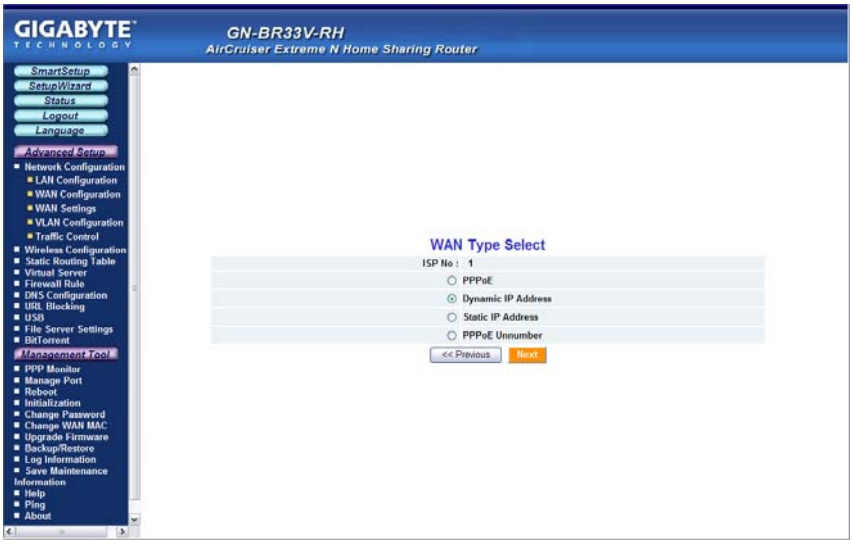
DHCP Option
The DHCP server "leases" out address for specific times (Time To Live) to the various hosts. If a host does not use a given address for some period of time, that IP address can then be assigned to another machine. When assignments are made or changed, the DHCP server must update the information in the DNS server. The AirCruiser G DHCP Lease Table displays the associated IP/MAC assignment and Time To Lease.

Force IP-MAC Mapping
Allows you to manually assign a specific IP address to a specific network device (MAC address) on the network. This will be updated in the ARP table automatically.

The WAN Configuration Tab

The GN-BR33V-RH has many advanced WAN configuration features. As a special redundant feature, you can configure up to 4 WAN connections and each may have its own connection type (PPPoE, PPPoE Unnumber, Dynamic IP address, Static IP address) and other properties. The device can automatically attempt to connect to these in order if your primary connection fails.

Click the **Edit** button to the right of the ISP that you wish to modify. A screen will appear allowing you to change the Internet connection type. (see below) Click the **Next** button to continue with modifications.



Depending on the WAN type you select, the corresponding WAN setup screen will appear next.

WAN Configuration Tab – Dynamic IP Address

Your Internet Service Provider will supply you with the following account information you will need:

- ISP Name
- Host Name
- Gateway
- DNS1 and DNS2 Address
- DNS Domain Name

Enter the information provided by your ISP in the spaces provided.

MTU (Maximum Transmission Unit)
The largest packet unit is sent from your computer to the network. Any message larger than MTU will be divided into smaller packets before being sent. You should keep the default setting (1500). Setting MTU size is largely a process of trial-and-error: If you suspect your MTU setting is causing a connection problem, start with the maximum value of 1500, and then reduce the size down to 1400 until the problem goes away.

NAT Setup
The Network Address Translation (NAT) is a standard that allows multiple computers on a private network to share a single IP address.
Universal Plug and Play (UPnP) is a technology based on Internet standards and technologies, such as TCP/IP, HTTP, and XML, that allows devices on a network to automatically connect with other devices.

UPnP Delete Time
Select the duration that UPnP will be active. Since allowing this may present a security risk, the default setting is 0.

If the WAN IP address and LAN IP address obtained from DHCP server are from the same subnet, the LAN IP address will *automatically* change to another subnet and reboot the router.

WAN Configuration Tab – PPPoE

Your Internet Service Provider will supply you with the following account information you will need:

- ISP Name
- User ID/Password
- Service Name
- AC Name
- DNS1 and DNS2 Address
- DNS Domain Name

Enter the information provided by your ISP in the fields provided.

Authentication Type
Select one of the following authentication settings: Auto, CHAP or PAP. The default setting is “Auto” (automatic authentication).

Challenge Handshake Authentication Protocol (CHAP) is the most common authentication method using PPP dialup method. With CHAP, the server will send a challenging signal to a remote Router, which will send back an encryption key.

Password Authentication Protocol (PAP) is a simple PPP authentication protocol allowing a Router to send a simple user ID and password to another Router for authentication. PAP has been defined in RFC1334.

Connection

Automatic When the GN-BR33V-RH is powered on, it automatically establishes a connection with the network. If the link becomes disconnected for any reason, the GN-BR33V-RH will re-connect automatically.

Manual When you click “connection”, the system will establish a connection to the network. If the link becomes disconnected for any reason, the GN-BR33V-RH will **not** re-connect automatically.

Dial on Demand

Enable When there is no Internet activity for a period, the WAN connection will automatically end. If a browser is launched again, the GN-BR33V-RH will automatically connect to Internet.

Disable When there is no Internet activity for a period, the WAN connection will automatically end. If a browser is launched again, the GN-BR33V-RH will **not** automatically connect to Internet.

WAN Configuration Tab – Static IP Address

Your Internet Service Provider will supply you with the following account information you will need:

- ISP Name
- WAN IP Address
- WAN Subnet Mask
- WAN Gateway
- Manual DNS1 and DNS2
- DNS Domain Name

This information is all provided by your ISP. In the event that your ISP has assigned you several Static IP addresses, you will only need to one.

WAN Configuration Tab - PPPoE Unnumber

PPPoE Unnumbered is a PPPoE service provided by some ISPs. The GN-BR33V-RH supports services that provide multiple global IP addresses. When using PPPoE Unnumbered, you can have up to 16 Global IP address depending upon your ISP's service policy. Among these Global IP addresses, one is used as Router's WAN IP address and the others can be used by the downstream clients of the Router.

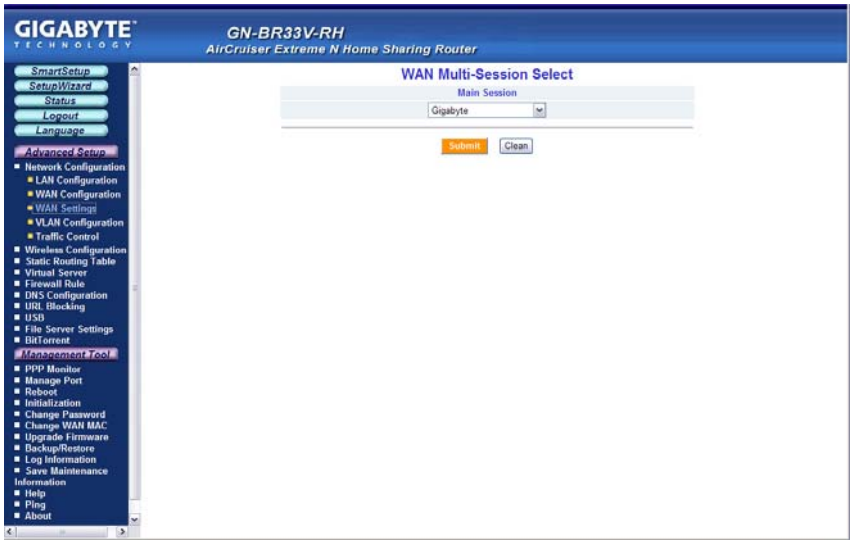
Your Internet Service Provider will supply you with the following account information you will need:

- ISP Name
- User ID/Password
- Service Name
- AC Name
- Manual DNS1 and DNS2
- DNS Domain Name
- WAN IP Address
- WAN Subnet Mask

Enter the information provided by your ISP for each of your Global IP's, then click next to proceed to enter additional IP's.

The WAN Settings Tab - WAN Multi-Session Select

The WAN Session Select Tab displays the settings of the **Main Session**.



Select a WAN connection type for the Main Session from the drop-down menu.

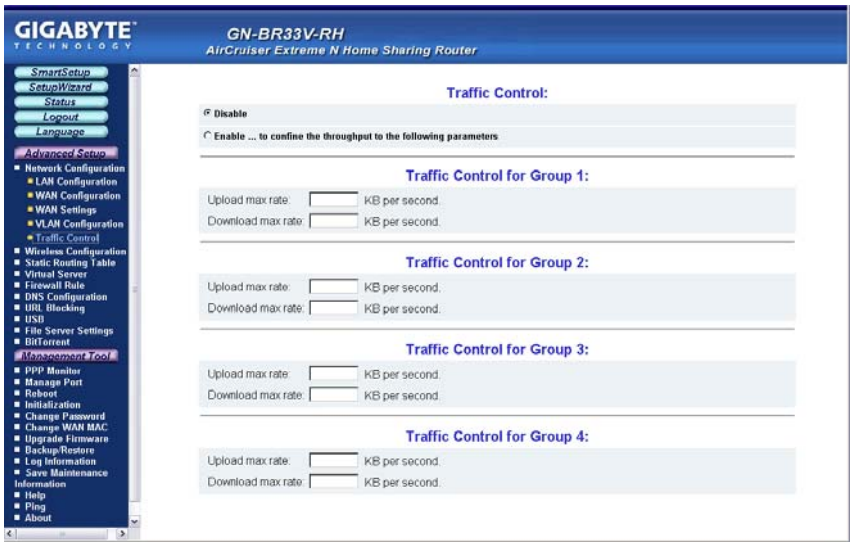
In the event the Main Session can successfully establish a connection with your ISP.

The VLAN Configuration Tap

Allowed to setup 4 VLAN Group.

Port 0~3：4 ports 10/100 Ethernet
SSIDA~D：BSSID 1~4 for wireless connection.

The Traffic Control Tab



The primary function of Traffic control is to control the incoming and outgoing traffic from the Internet across the WAN for **VLAN (GROUP 1~4)**.

Upload max rate Determine the maximum rate for uploading data.

Download max rate Determine the maximum rate for downloading data.

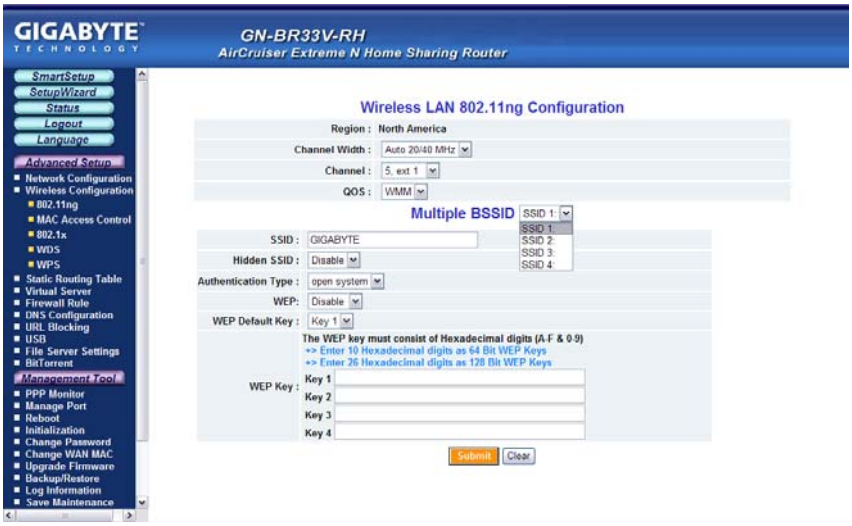
Click **Submit** to process the request.

Please note that the configuration speed is still limited to real connection speed. For example, the connection speed is 2Mbps, the configuration could be less or equal to 2Mbps. It is useless to configure a speed that is faster than real connection speed.

The Wireless Configuration Screen

The **Wireless Configuration** screen allows you to configure the Router's WLAN function.

The 802.11ng Tab



Region
Indicates the geographical region you are in. Verify that the region indicated is correct. If not, please contact your local distributor or dealer immediately.

Channel Width
Selecting channel width by clicking the drop-down list.
Option 20Mhz indicates supporting 20MHz channel bandwidth.
Option Auto 20MHz/40MHz supports auto channel switching, and supports up to 40MHz, offering more faster speed.

Channel
The channel may be manually changed (if there are other wireless networks operating in your area) by selecting a channel from the drop-down list.

QOS
Select the QOS type from drop-down list.

Multiple BSSID
Select the BSSID type from drop-down list.

SSID
The SSID (Service Set Identifier) is the name of your wireless network. The SSID is up to 32 ASCII characters in length and case sensitive (i.e. Letters in upper case “A~Z” and lower case “a~z” are unique). The default SSID is “GIGABYTE”. To change the SSID, type in the SSID you want to use in the SSID field and click Submit. If you make a change to the SSID, any wireless devices on your network must also be reconfigured to connect to the new network name.

Hidden SSID
For security purposes, you may choose to hide your network’s SSID by selecting enable from the drop-down list. This will prevent computers scanning for the presence of wireless networks to detect your network name. The default setting is disable.

Authentication Type

Select an authentication type from the drop-down list. The default setting is Open System.

Open System: The sender and the receiver do NOT share a secret key. Each party generates its own key-pair and asks the receiver to accept a randomly generated key. Once accepted, this key will only be used for a short period of time. Afterwards, a new key will be generated and agreed upon.

Shared Key: Authentication is based upon a secret key shared by both the sender and the receiver. If Shared Key is selected, you cannot choose the WEP disable option.

WPA Pre-shared key: The WPA Pre-shared Key authentication standard uses a password or “key” between 8 and 32 characters. This encryption key is changed after every dialog box using the Temporary Key Integrity Protocol (TKIP), which allows users to change keys based on dialog box and automatically synchronize keys between devices on the network. The TKIP encryption algorithm is stricter than the one used by WEP but is based on the same standard.
WPA: The 802.1x authentication protocol, allows users to authenticate wireless network access through a RADIUS Server and is a required by WPA standard. If no RADIUS Server exists in your network environment, you still can use WPA through the use of WPA Pre-shared Key.

WEP Key
The GN-BR33V-RH supports two WEP standards: 64-bit,128-bit. Select either 64-bits or 128-bits from the drop-down list activate WEP encryption. The 64-bits encryption uses 40 bits as a secret key, (user-defined) and the remaining 24 bits are reserved. The 128-bits encryption uses 104 bits as a secret key, (user-defined) and the remaining 24 bits are reserved.

WPA Re-key
Enabling the requirement for WPA rekeying of a Passphrase for increased security. Default is disable.

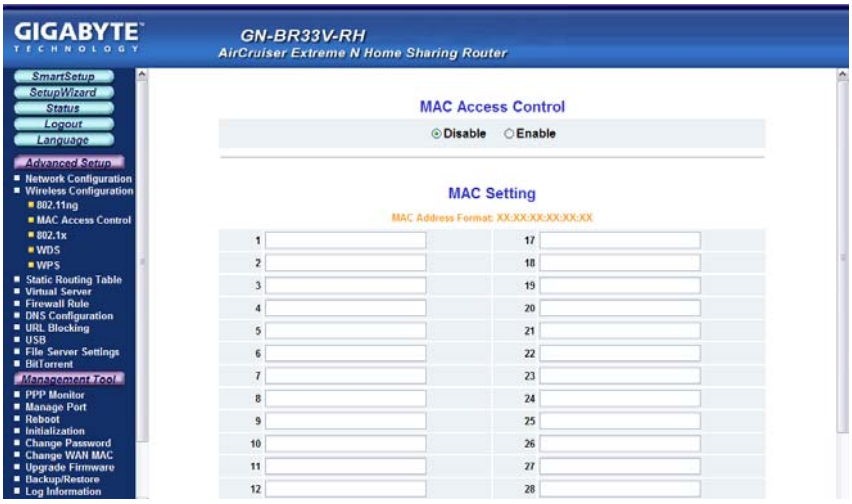
WEP Re-key Timer
Specify time (in minutes) for expiration of the current WPA Key.

WPA PSK Passphrase
The Passphrase must be between 8 and 64 characters.

WPA PSK Re-key
A user without a RADIUS server, may specify generating a new WPA PSK key more frequently than each time he connects to the network.

WPA PSK Re-key Timer
Specify time (in minutes) for expiration of the current WPA PSK key

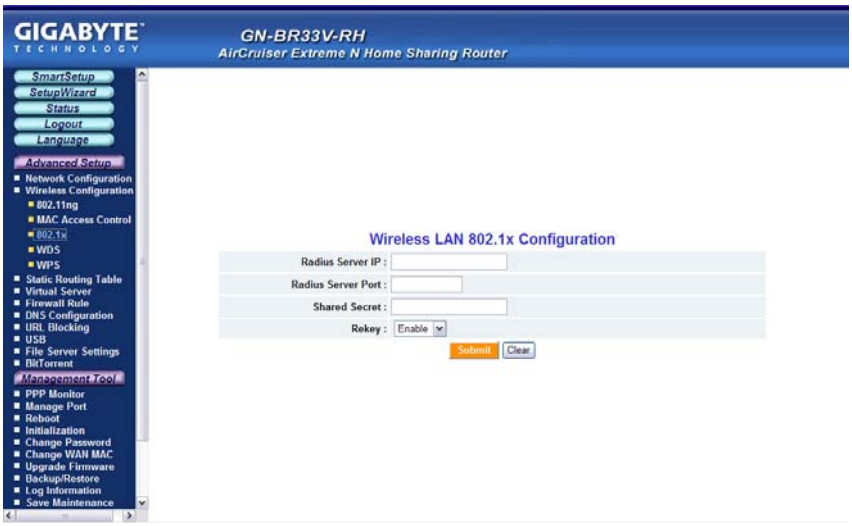
The MAC Access Control Tab



The **MAC Access Control** screen allows you to specify the Media Access Controller (MAC) address of up to 32 devices on your network. Only those devices listed in the table will have access to transmit data through the GN-BR33V-RH. In this way, even if someone manages to obtain all the information necessary to connect to your network, if their MAC address is not permitted, they still cannot connect. Keep in mind, however that MAC addresses can be spoofed, so it is not a panacea but rather another component of your existing security process. Enable the feature, then key in the MAC addresses to be allowed. Enter the MAC in the form separated by colon. The

default setting is **Disable**.

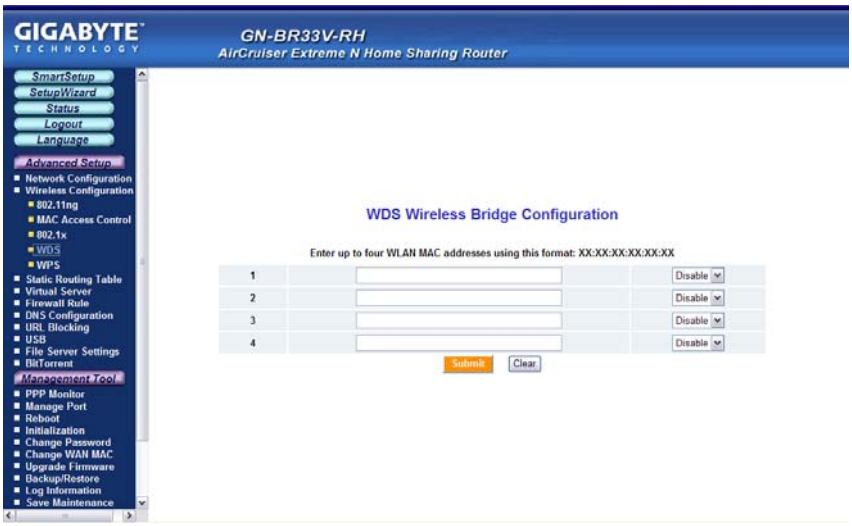
The Radius Server Configuration Tab



Your GN-BR33V-RH supports 802.1x and RADIUS Server authentication. RADIUS provides a centralized, server-based authentication of client access to the network.

RADIUS Server IP	Assign an IP address for the RADIUS Server.
RADIUS Server Port	Enter a value within the range 1~65536 for the port.
Shared Secret	Enter a password up to 256 characters (uppercase “A~Z”, lowercase “a~z” or numeric “0~9”) in length.
Rekey	Disable or enable Rekey function.

The WDS Tab



Wireless Distribution System (WDS) technology enables several access points to increase the coverage of a wireless network. Although enterprises or home users can reduce most wiring problems by using access points that support WDS, they still need cables to connect external ISP.

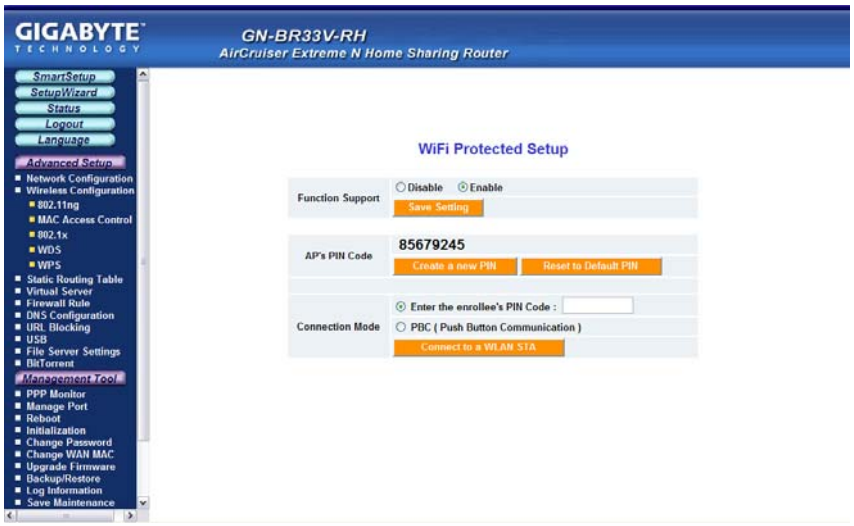
To use WDS, please make sure:

- ✓ All routers/AP's participating in the WDS must use the same RF Channel
- ✓ DHCP (if used) must only be enabled on the bridge Router and **not** on the node AP's.

Example: Suppose Router1 is connected to the DSL modem, and uses DHCP to dish out IP's to your WLAN. To use Router1 to bridge to a remote AP, key in AP's Wireless MAC Address in Router1's WDS configuration list and select "enable" then press Submit. In AP's LAN settings, disable DHCP and assure the AP uses the same RF Channel as the Router1. You should now be able to connect to Router1 through AP.

Note that bridging between different vendors wireless gear is not guaranteed. Your GN-BR33V-RH may only create a WDS environment with other Gigabyte Routers or GIGABYTE Access Points.

The WPS Tab



The primary goal of Wi-Fi Protected Setup (Wi-Fi Simple Configuration) is to simplify the security setup and management of Wi-Fi networks. Gigabyte STA supports the configuration and setup using a PIN configuration method or a PBC configuration method through an internal or external Registrar.

Function Support Select either enable or disable WPS function support. Determine the function support, then click the “Save Setting” tab to save the configuration.

AP’s PIN Code This item provide function for user to Create a New PIN or Reset to Default PIN.

Connect Mode The user is required to enter an 8-digit PIN Code into Registrar. When an STA is the Enrollee, you can click "Renew" to re-generate a new PIN Code.

The Static Routing Table Screen

The **Static Routing Table** displays the GN-BR33V-RH routing settings. To add or modify, enter a value into the field and click the **Submit** button.

Destination IP
Enter the Destination IP address that will be assigned to a specific network or host.

Netmask
Enter the netmask associated with the Destination IP.

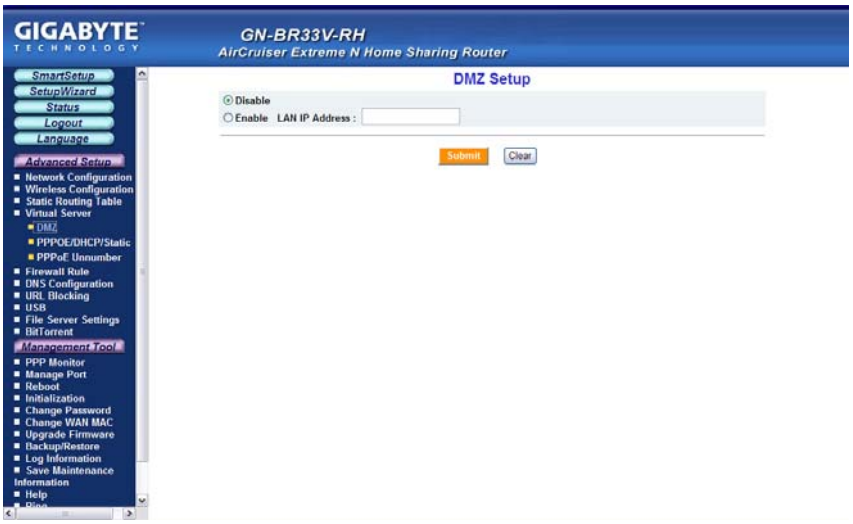
Gateway
Enter an IP address that will be assigned to the interface connecting to subnets.

Metric
The “Metric” value is a number between 1and 15 that represents the number of Routers between your network and the destination. Generally, setting the Metric value as either 2 or 3 is sufficient for most applications. If this is a direct connection, please set the value to 1. The default setting is 1.

The Virtual Server Screen

The **Virtual Server** screen allows you to manage the virtual server settings of the GN-BR33V-RH. There are two virtual server options: 1. The router has only one IP address or, 2. The router has multiple IP addresses (8 or 16 in most instances). If you have only one IP address click on the **PPPoE/DHCP/Static** tab. If you have multiple IP addresses, click on the **PPPoE Unnumber** tab. The DMZ Support tab allows you to enable a Demilitarized Zone (Zone) on your network.

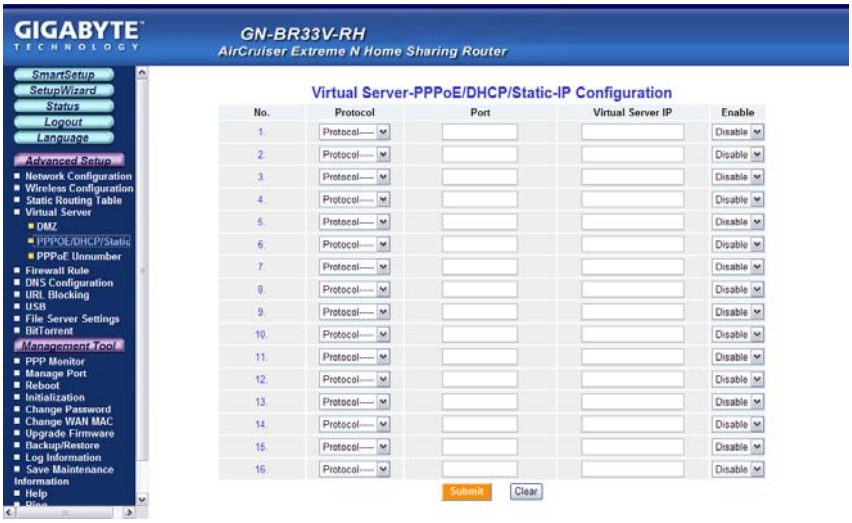
The DMZ Setting Tab



With a firewall setup, it sometimes necessary to place some clients (e.g. Internet games, video conferencing, or VPN connections) outside of the firewall while leaving the others protected. You can do this using a Demilitarized Zone. The DMZ feature allows you to specify the IP address of the computer that will be placed outside the firewall of your network. Enter the IP Address of your computer (e.g. 192.168.1.2) into the LAN IP Address field and click the **Submit** button.

	Note: DMZ servers pose a security risk. A computer designated as the default DMZ server loses much of the protection of the firewall, and is exposed to exploits from the Internet. If compromised, the DMZ server can be used to attack your network.

The Virtual Server PPPoE / DHCP / Static Configuration Tab



The GN-BR33V-RH is configurable to behave as a Virtual Server, allowing remote computers on the WAN (Internet) side of the network to be automatically redirected to local server(s) on the LAN (your private network) side of the network.

Protocol The protocol used for the virtual service

Port The port number of the service used by the PC on the LAN side.

Virtual Server IP The server computer in the LAN that will be providing the virtual services

For example, if you have an FTP server on the LAN side you wanted Internet users to access, suppose the PC has a local IP address of 192.168.1.1, you would use the following virtual server settings:

- Protocol: TCP
- Port: 21 (FTP uses port 21)
- Virtual Server IP: 192.168.1.1
- Enable: enable

The PPPoE Unnumber Tab

Advanced feature of the GN-BR33V-RH is that it supports services that offer multiple global IP addresses, with each IP address requires its own setting. This feature is normally only found on enterprise class routers. The GN-BR33V-RH has an IP allocation scheme capable of directly assigning global IP to LAN clients.

You can only take advantage of this feature if your ISP service packages will provide you with a range of valid “Global IP”. (For example **61.222.10.1** ~ **61.222.10.7**) These seven addresses can be individually configured.

Global IP An IP within the range of IP’s assigned to you by your ISP

Protocol The protocol used for the Unnumbered service

Port The port number of the service used by the LAN side

Virtual Server IP The computer on the LAN that will be providing the Unnumbered virtual services

Example: Taking the IP address of 192.168.1.1 of a PC connected to the GN-BR33V-RH for example would use the following settings:

- Global IP: 61.222.10.2
- Protocol: TCP
- Port: 21
- Virtual Server IP: 192.168.1.1

- Enable: enable

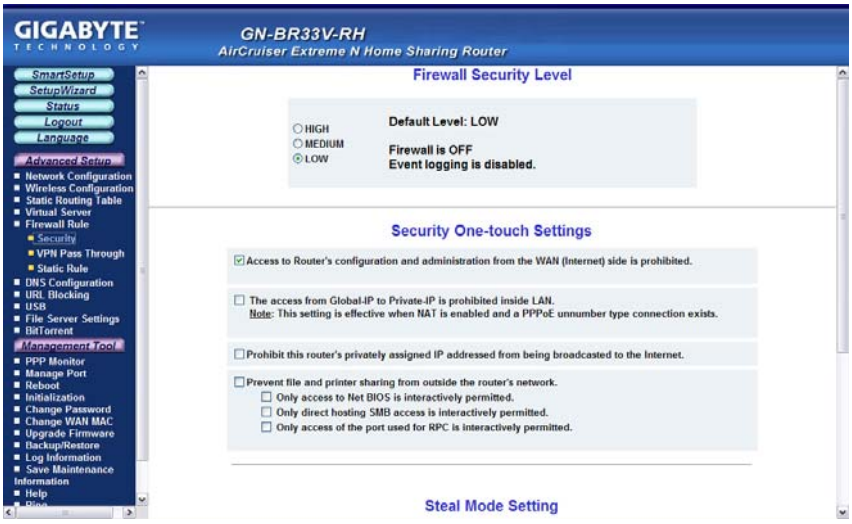
The Global IP 61.222.10.2 is now directly assigned to the FTP server at the IP address 192.168.1.1 located within the GN-BR33V-RH's LAN.

The Firewall Rule Screen

The Firewall Rule screen displays your network security settings. Use this screen to create network security policies to prevent unauthorized access to your network.

The Security Configuration Tab

Select security configuration options from this page including **Security One-Touch Setting**, **Stealth Mode** and **Unlawful Computer Access Detection**. You can select with one click a 'High" "Medium" or "Low (off)" level of Security. You can fine tune your security level settings with the One-touch Settings section. Just check /uncheck the boxes to include/remove that particular setting.



	When any item in Security One-touch setting combined with "**Stateful Packet Inspection is used"** under the **Unlawful Computer Access Detection** group are checked, the **URL Blocking** feature becomes unavailable.

The VPN Pass Through Tab

A Virtual Private Network (VPN) is a type of secured private network connection, built upon publicly-accessible infrastructure such as the Internet. They usually provide connectivity to various devices behind a gateway or firewall.

The GN-BR33V-RH supports Internet-industry standard technologies to provide open and interoperable VPN solutions, including Internet Protocol Security (IPSec), Layer 2 Tunneling Protocol (L2TP) and Point-to-Point Tunneling Protocol (PPTP).

PPTP Pass Through setting
Point-to-Point Tunneling Protocol (PPTP) allows you to establish a connection to an enterprise network. To allow PPTP tunnels to pass through the Router, click Enable and key in the Router's IP address.

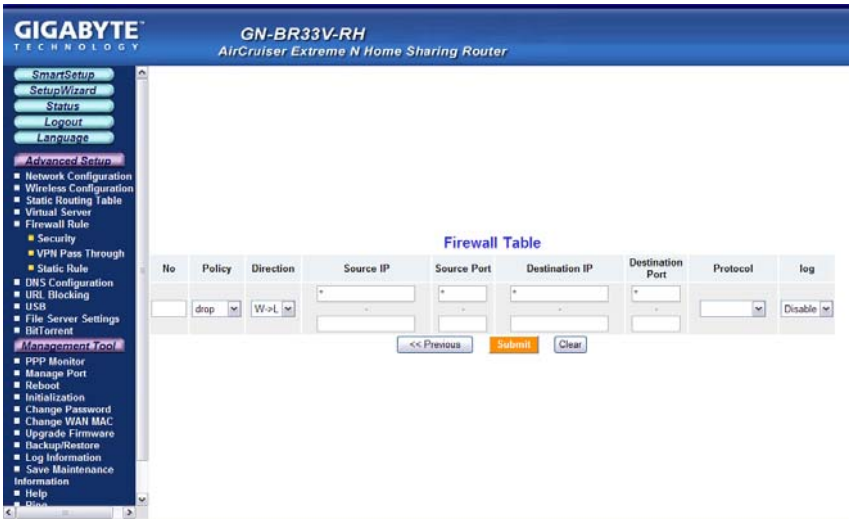
IPSec Pass Through setting
IP Security (IPSec) provides authentication and encryption. Since it is mainly a Layer 3 technology, it can secure all data on the network. To allow IPSec tunnels to pass through the Router, click Enable and key in the Router's IP address.

L2TP Pass Through setting
Layer 2 Tunneling Protocol (L2TP) is an extension of the Point-to-Point Tunneling Protocol and is also used to establish virtual private networks. To allow L2TP tunnels to pass through the Router, click Enable, and key in the Router's IP address.

The Static Rule Tab

The Static Rule screen allows you to manually edit the firewall rule table, thereby helping to protect your network from external attacks as well as provide a method to restrict Internet access to users on your network. Additionally, it can filter out specific packets which are used by hackers to trigger the Router to establish an outgoing connection.

To edit the current settings, click the **Add** button. The following screen will appear.



Rule Number (No.)
Enter a number for the rule between 1 and 64. Rules are ranked in priority based on their number in descending order, so that rule 1 is given the highest priority and rule 64 the lowest priority.

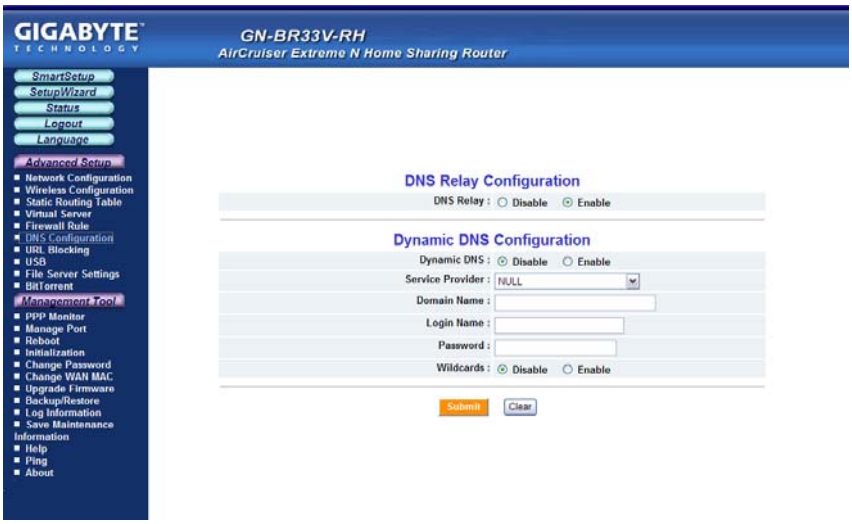
Policy
Select an **accept** or **drop** option. You can specify the Router to drop (or accept) all packets which meets the Rule criteria.

Direction
Specify the packet flow direction according to data filtering rule.
a. **W->L:** WAN to LAN, filtering incoming packets
b. **L->W:** LAN to WAN, filtering outgoing packets

Protocol
Select a setting from the drop-down list to specify the protocol (s) for the static rule.

Log
Enable or disable the log feature.

The DNS Configuration Screen



DNS Relay
DNS Relay will set your PC's DNS entries to point to the Router's Gateway address, which will then forward DNS queries to the DNS server used by the Router. This is needed when using DHCP to assign IP address to the PC's in you LAN. The default value of DNS relay is **Enable**.

Dynamic DNS
The GN-BR33V-RH offers a **Dynamic Domain Name Server** (DDNS) service that allows you to assign a fixed host and domain name to a dynamic Internet IP address. This gives Internet users the ability to connect with a virtual sever using a FQDN, rather than with an IP address. Before using this feature, you must first register an account with the dynamic DNS service. (http://www.dyndns.org)

Service Provider	From this pull down menu, enter the DDNS service with which you have membership.
Domain Name	This is the DDNS URL assigned by the DDNS service.
Login Name	Enter the User Name for your DDNS account.
Password	Enter the Password for your DDNS account.
Wildcards	If your dynamic DNS provider allows using wildcards in resolving your URL, you may select Enable to activate this function.

The URL Blocking Configuration Screen

The URL Blocking Configuration screen allows you to restrict access based upon specific web addresses and/or keywords.

To activate the **URL Blocking** feature:

Keyword Enter the keyword or domain in the Keyword field that you wish to block.

All URL's with those keywords in the DOMAIN name will now be blocked.

The USB Screen

Support one HDD or Flash Memory Storage device.

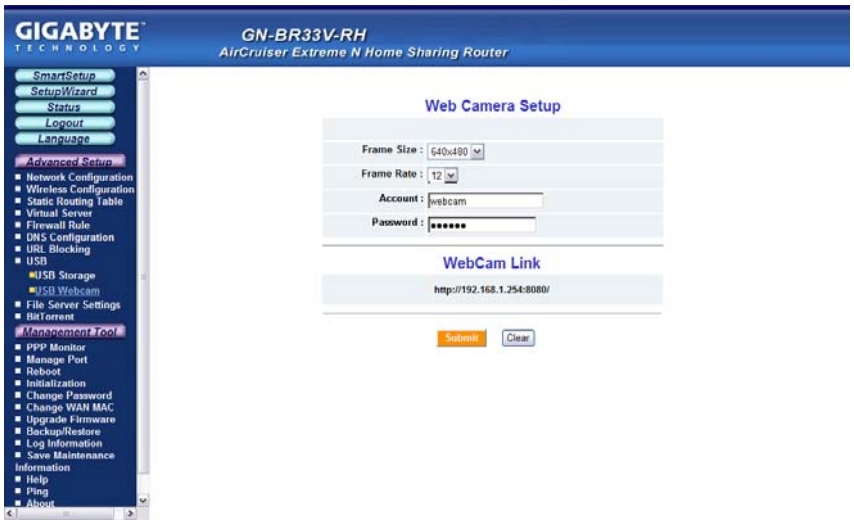
The USB Storage Tab

Related information on storage

Description	Device name for storage
Format Type	File system format of storage (FAT or EXT3)
Status	Mounted or Unmounted
Total Size	Capacity of storage device
Free Size	Remained capacity of storage device
Unmount	Unmounted storage device

The USB Webcam Tab

Setup account/password for watching Webcam (Only supporting UVC specification)



Set up webcam

Frame size adjust resolution
Frame Rate frame per second (FPS)

Connect with Webcam link for watching webcam

Two methods for connection (port 8080) with webcam on WAN side:

1. **WAN IP** (ex: http://XXX.XXX.XXX.XXX:8080/)
2. **DDNS** (ex: http://XXXXXX.net:8080)

Please refer page 42 for setting up DDNS.

The File Server Setting Screen

The User Setting Tab

Upto 8 account/password for accessing storage devices on Samba Server (Windows Network) or FTP Server (Only for UFT-8 file system format)

User Name Setup account

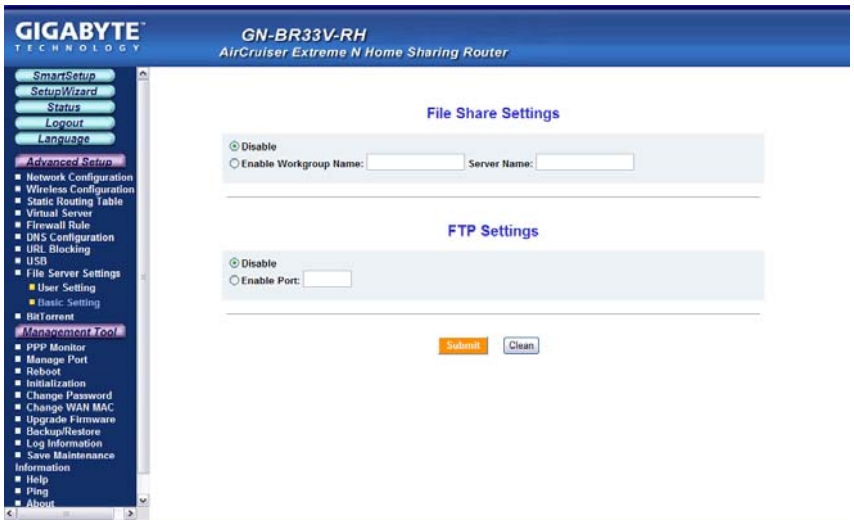
User Password Setup password

Enable If enabled, user is allowed to access data on Samba Server or FTP Server.

Allow Write If enabled, user is allowed to write data on FTP Server.

The Basic Setting Tab

Setup Samba Server (Windows Network) and FTP Server



Setting of Samba Server/Windows Network

Workgroup Name Name of connected group.
Server Name Name of connected computer

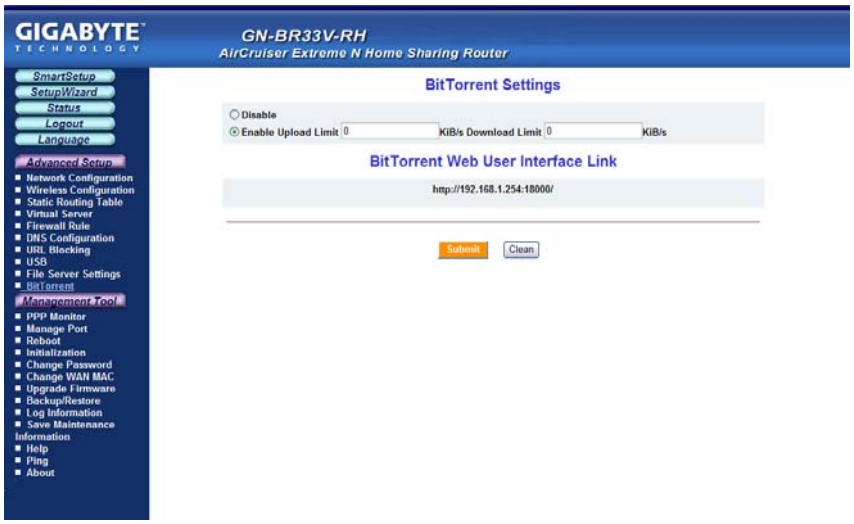
User is allowed to access Samba Server by Windows Network or searching Server Name.

Setting of FTP Server
Port: FTP Server port number

The BitTorrent Screen

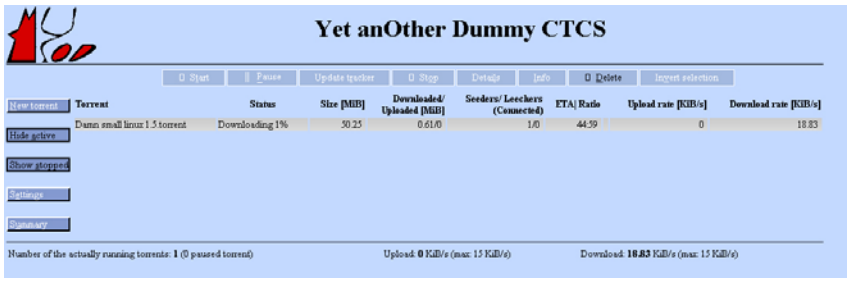
The BitTorrent Settings Tab

Setting for transfer speed of upload/download



Upload Setup upload speed
Download Setup download speed

After connected with web management UI for BitTorrent, user is allowd to setup upto 16 BT seeds and maximum 4 accesses simutaneously.

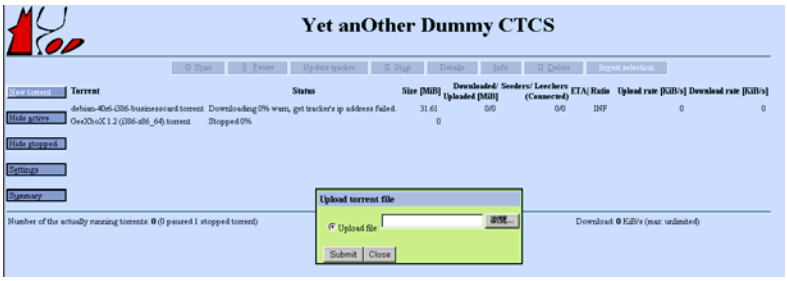


Pinions dedicated to each BT seed:

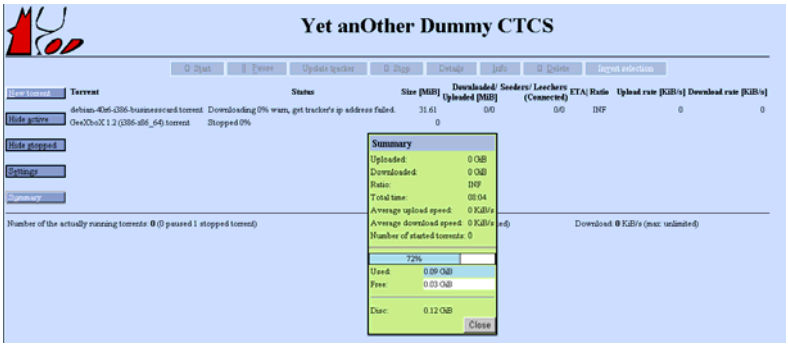
Start Start this seed

Pause Pause this seed

Update Tracker	Update Tracker of this seed
Stop	Stop this seed
Details	Showing information on this seed in details
Info	Showing information on this seed
Delete	Delete this seed
Invert Selection	Select unselected opinions



New Torrent	Add Torrent
Hide Active	Hiding BT seeds on access
Show Active	Showing BT seeds on access
Hide Stopped	Hiding stopped BT seeds
Show Stopped	Showing stopped BT seeds
Settings	Setup speed of upload/download (as well as default setting)
Summary	Related information on BitTorrent Server



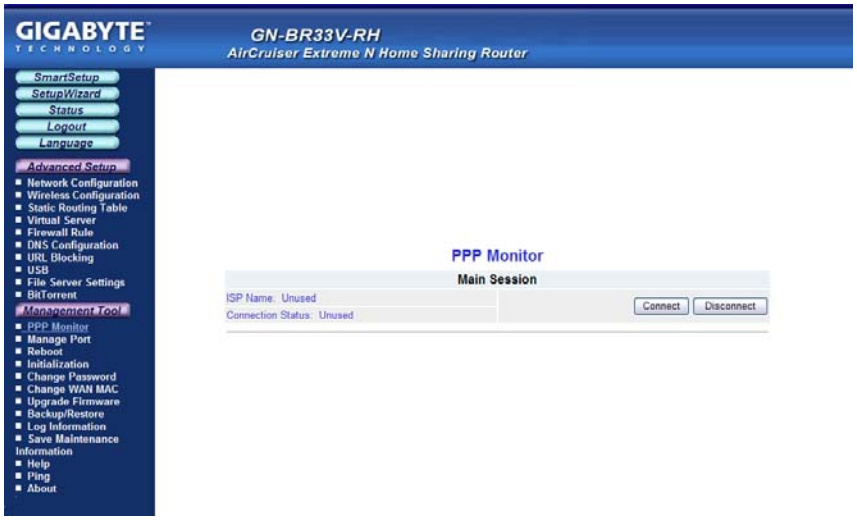
Chapter 7
Using Management Tools

Overview

Management Tool Screens offer management of the Router itself, such as Firmware Updates, Initialization, and Password administration etc.
The instructions in this chapter will help you how to use the management tools of the web-based utility to effectively manage your GN-BR33V-RH wireless broadband router.

The PPP Monitor Screen

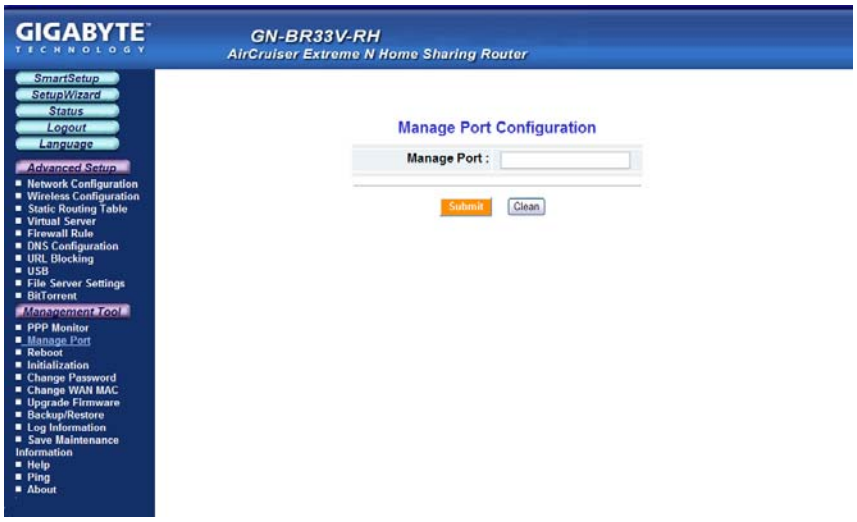
The **PPP Monitor** screen displays the WAN (Internet) connection status. Click the **Disconnect** button to end your current session. Click the **Connect** button to re-connect to the ISP.



Manage Port Configuration Screen

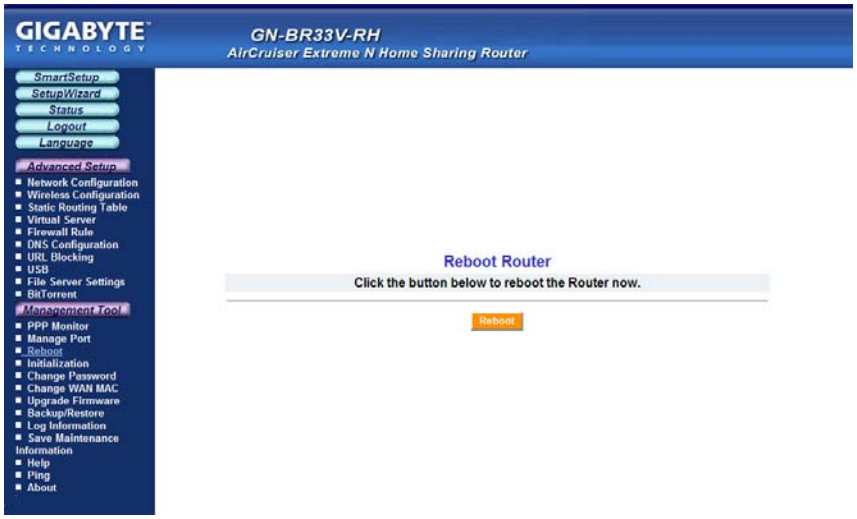
The **Manage Port Configuration screen** allows you to change the port on which the Router's configuration utility runs. The default is Port 80 but users can change this to any port they wish (like 8080, 8000 or else port). In this case, to access the Router configuration utility, you would type

http://192.168.1.254:8080



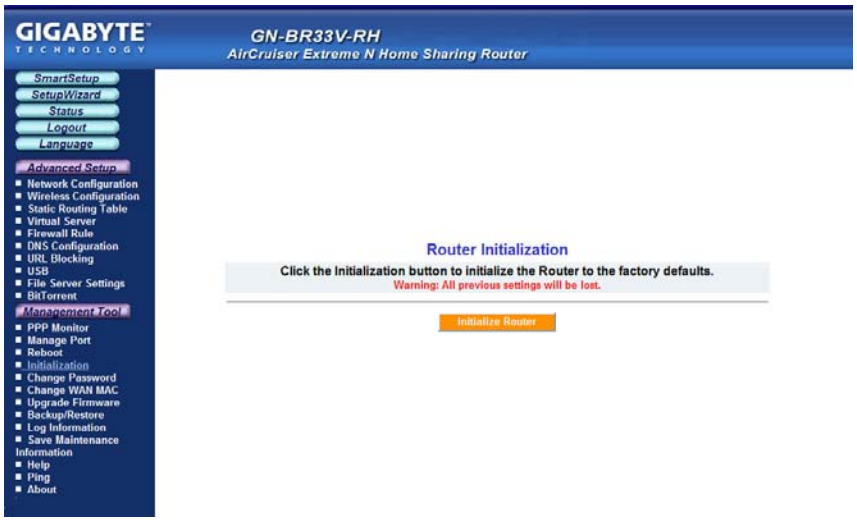
The Reboot Screen

The Reboot screen allows you to reboot the GN-BR33V-RH. You are also automatically brought to this screen after you confirm OK to any change of Router settings.



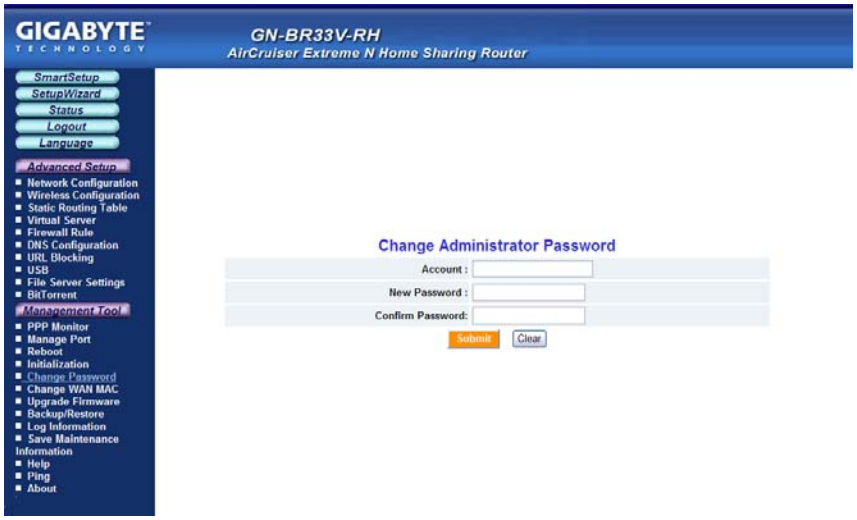
The Initialization Screen

The **Initialization** screen allows you to reset the GN-BR33V-RH back to its original factory settings. To initialize the router, use the tip of a pencil or a paperclip to press and hold the **init** button for 5 seconds. (The init button is located on the side of the unit, next to the AC power input).



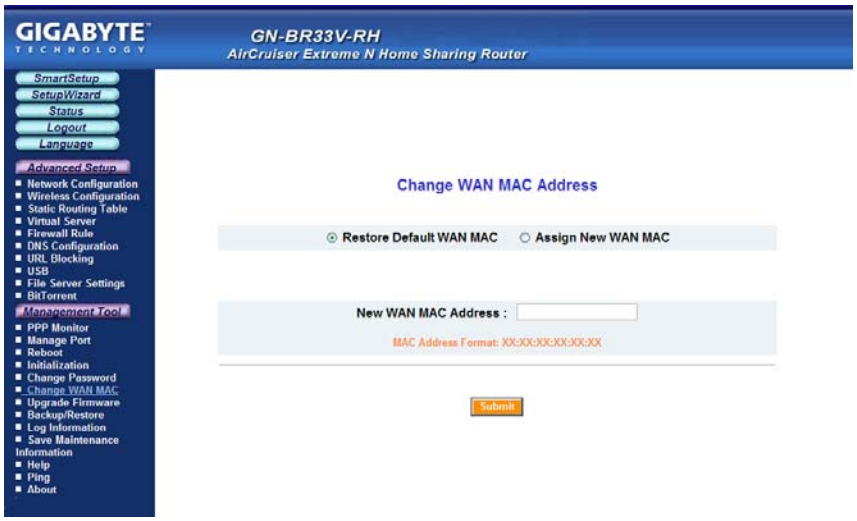
The Change Password Screen

The **Change Password** screen allows the administrator to create a new password for the GN-BR33V-RH. To change an existing password, enter your account and new password and after re-typing the password to confirm, click the **Submit** button.



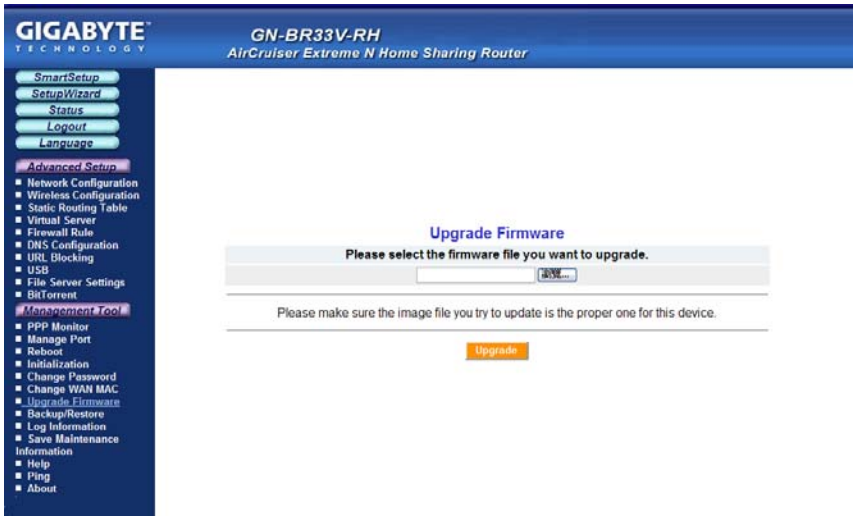
The Change WAN MAC Screen

The **Change WAN MAC** screen allows you to assign a new MAC address. If your ISP requires MAC address authentication, chose the **Assign WAN MAC** option and enter the ISP authorized MAC address in the **New WAN MAC Address** field and click the **Submit** button. If you want to restore the factory default MAC address, choose the **Restore Default WAN MAC** option and click the **Submit** button.



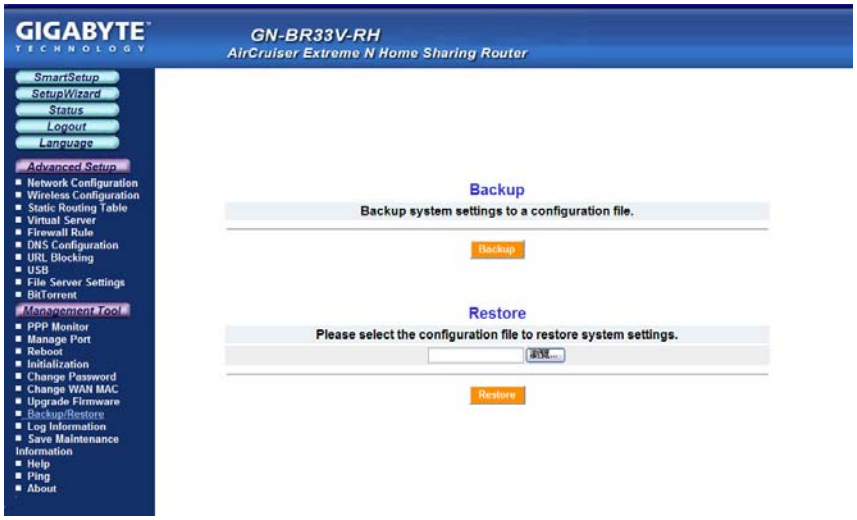
The Upgrade Firmware Screen

The Upgrade Firmware screen allows you to update the current GN-BR33V-RH firmware to the latest version directly from the GIGABYTE website. Click the Browse button to locate the firmware file which you just downloaded from the GIGABYTE website, and then click **Upgrade**. Warning: Assure you are installing the correct firmware version.



The Backup / Restore Screen

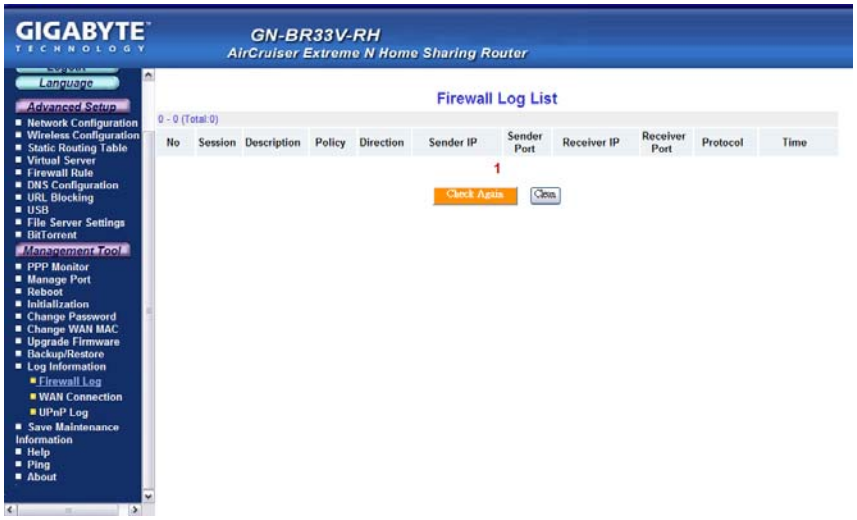
The **Backup / Restore** screen allows you to save the current configuration settings of the GN-BR33V-RH as a temp file onto your computer. To revert the GN-BR33V-RH to back to a previously saved configuration settings, click the **Browse** to locate the saved configuration file. Then, click the **Restore** button.



The Log Information Screen

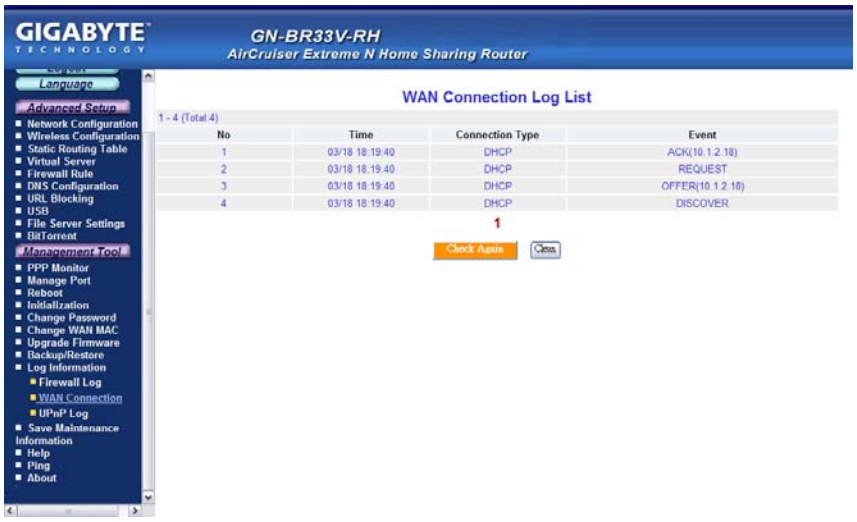
The GN-BR33V-RH has advanced firewall features, and can effectively prevent intruders and unwanted attacks on your network, while keeping logs of all such attempts including all legitimate WAN connections and UPnP logs. Click on **Firewall Log**, **WAN Connection** or **UPnP Log** to view the list.

The Firewall Log Tab



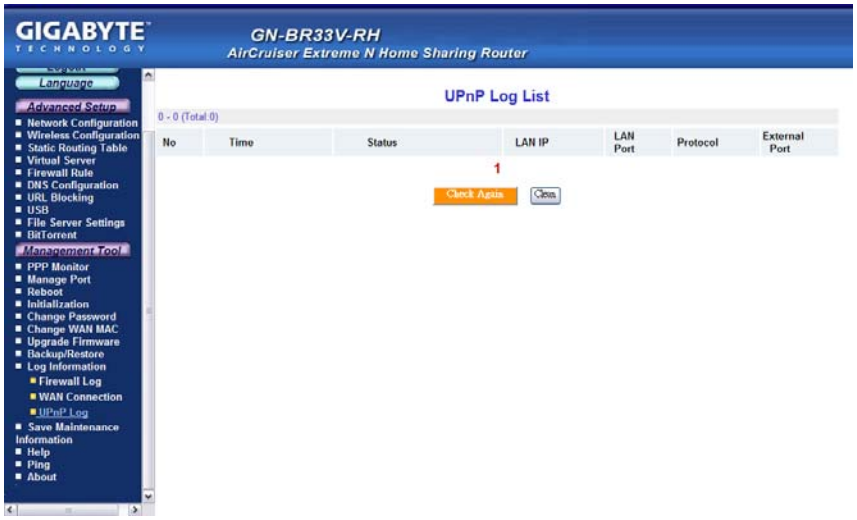
The WAN Connection Tab

In the WAN connection Log, all logins are chronologically ordered, with indications of connection type and event type.



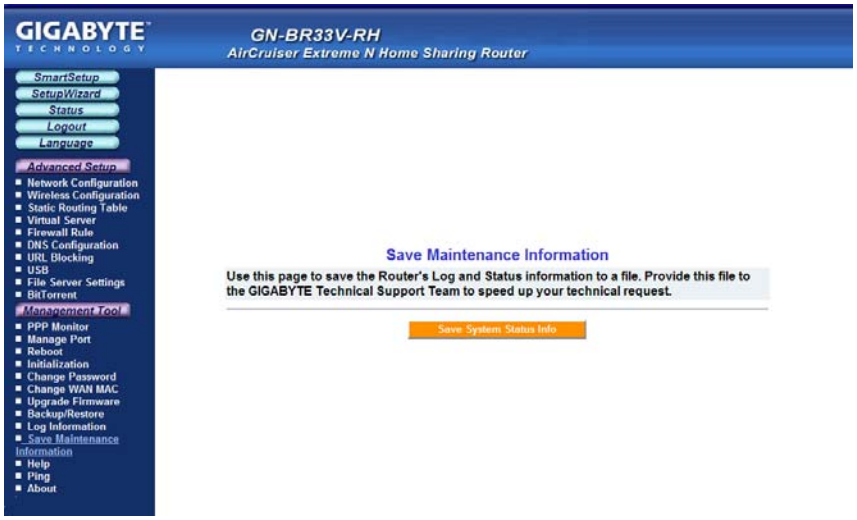
The UPnP Log Tab

The Universal Plug and Play log screen records and displays UPnP packets reaching your GN-BR33V-RH. It logs details such as Source IP, time of connection, connection status, external port and protocol for LAN port(s) that are UPnP enabled. To refresh the list, press “Check Again”.



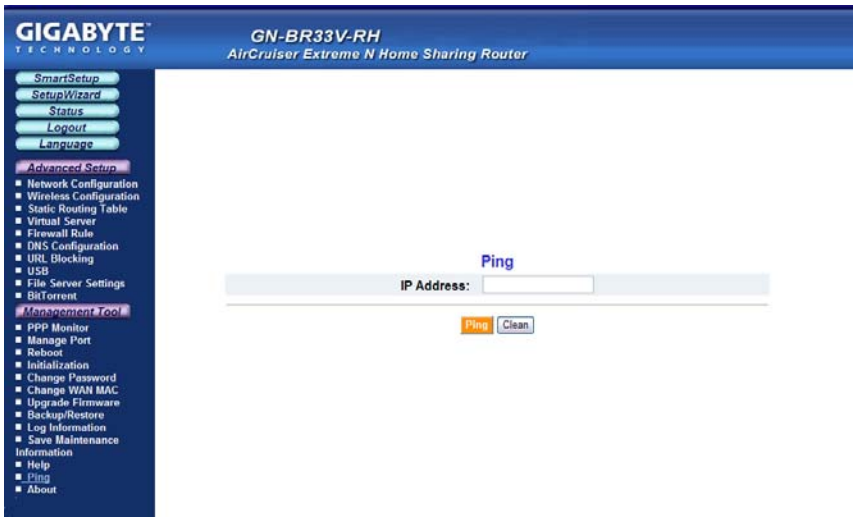
The Save Maintenance Screen

The Save Maintenance screen allows you to save logs and status information as a file which can then be sent to the Technical Support team at GIGABYTE.



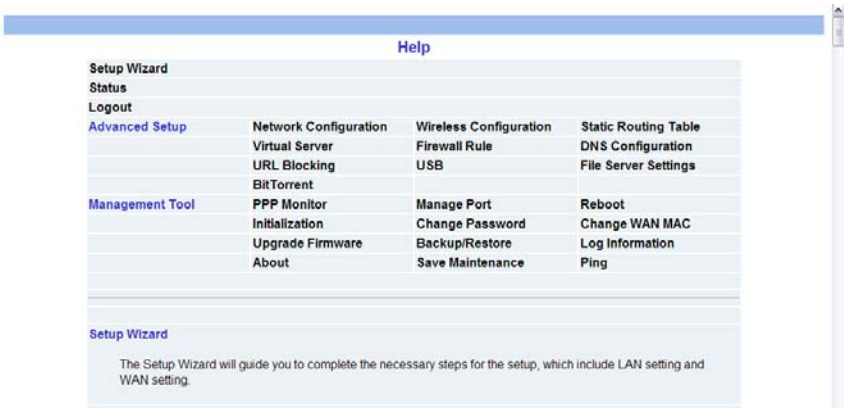
The Ping Screen

'Pinging' involves sending a packet of data to a site and recording how long it takes for the site to acknowledge receipt. This is useful if you think that a web site might be slow or unavailable. Type the IP Address and click the Ping to start.



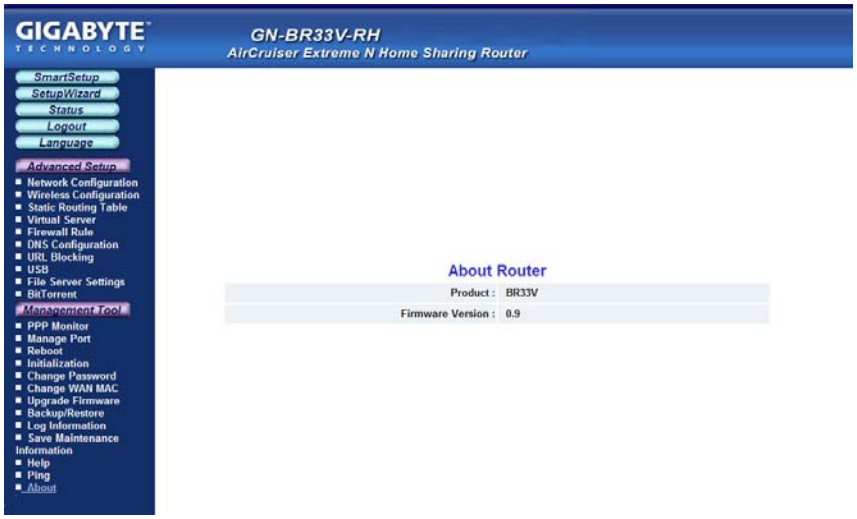
The Help Screen

The **Help** screen is where you can access online guide to assist in configuring the GN-BR33V-RH.



The About Screen

The **About** screen displays the Router model name and firmware version.



Appendix A
FAQ

This section provides solutions to common problems that may occur during installation, configuration or use of the GN-BR33V-RH.

Q: What is the default IP address for the BR33V-RH?
A: 192.168.1.254

Q: I can't remember the password or IP address of the router.
A: You can resolve this by pressing the "**Init**" button on the side of the router. You can also reset the Router from the Web Utility <Initialization Page>. The Router will reboot and all settings (including the default password) will be restored to their default values.

Q: What is the default username and password for the GN-BR33V-RH?
A: Username is "admin" and password is "admin".

Q: Why do I have to setup ISP information into my Router?
A: ISPs require a special login protocol, in which you must enter a login name and password in order to access the Internet. In order to share the Internet connection among several computers, you must configure it with the TCP/IP information that your one PC would normally use.

Q: Where in the network do I connect the router?
A: In a typical environment, the GN-BR33V-RH is installed directly onto the ADSL/Cable Modem. Plug the RJ45 Ethernet cable of the ADSL or Cable Modem into the WAN port of the Router.

Q: Why should I use the GN-BR33V-RH to work as a DHCP server?
A: Using the **GN-BR33V-RH** Router as a DHCP server By default, the router will function as a DHCP (Dynamic Host Configuration Protocol) server, allowing it to assign IP, DNS server, and default gateway addresses to all computers connected to the router's LAN. The assigned default gateway address is the LAN address of the router. IP addresses will be assigned to the attached PCs from a pool of addresses specified in this menu. Each pool address is tested before it is assigned to avoid duplicate addresses on the LAN. DCHP helps prevent IP conflicts.

Q: What is the IEEE 802.11g standard?
A: The IEEE 802.11g standard specifies data rates of up to 54 Mbps in the 2.45-GHz band. It uses Orthogonal Frequency Division Multiplexing (OFDM), which is provided by this standard and is compatible with 802.11b standard offering speeds of about 11 Mbps. This standard uses

Complementary Code Keying (CCK) modulation. Both 11g and 11b can operate at a range of up to 300 feet.

Q: When using GN-BR33V-RH in Australia, you will use PPPoA protocol. How to set up your configuration in GN-BR33V-RH?

A: Suggestion 1, Using Static IP.
Suggestion 2, Using DHCP client to get IP from ADSL/Cable modem.

Appendix B
Using Setup Wizard

In addition to Smart Setup, your GN-BR33V-RH Router's ISP settings may be configured manually using Setup Wizard. Press the Setup Wizard menu button to proceed. You will be presented with the screen shown below. Please choose your Internet connection (WAN) type from the list and follow the steps for instructions

LAN IP Address: Input **LAN IP Address**.

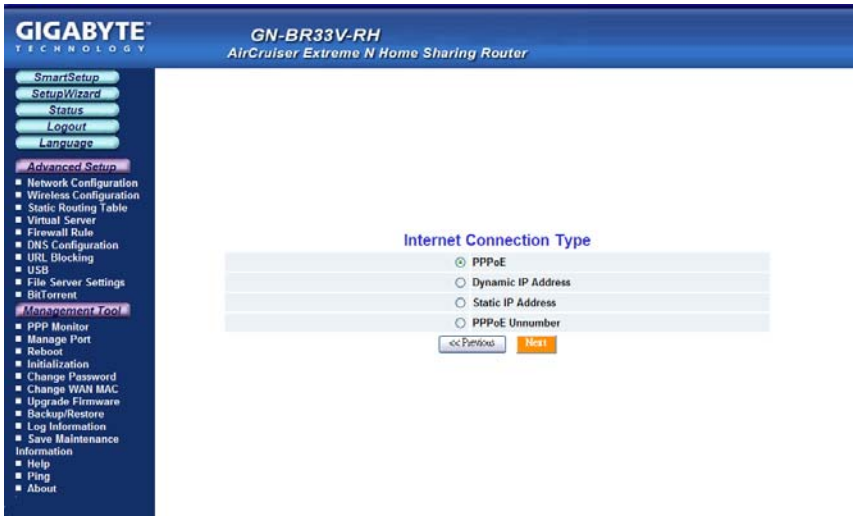
LAN Subnet Mask: Input **Subnet Mask**.

DHCP Server: Enable or Disable DHCP server option. The default setting is **enabled**.

Starting IP Address: Input **Starting LAN IP Address**.

Ending IP Address: Input **Ending LAN IP Address**.

Click Next to process LAN Setup configuration.



PPPoE: Most common type for typical home users. If your broadband ISP service PPPoE, please select this item, click the Next button and then **go to Step 3** of this section

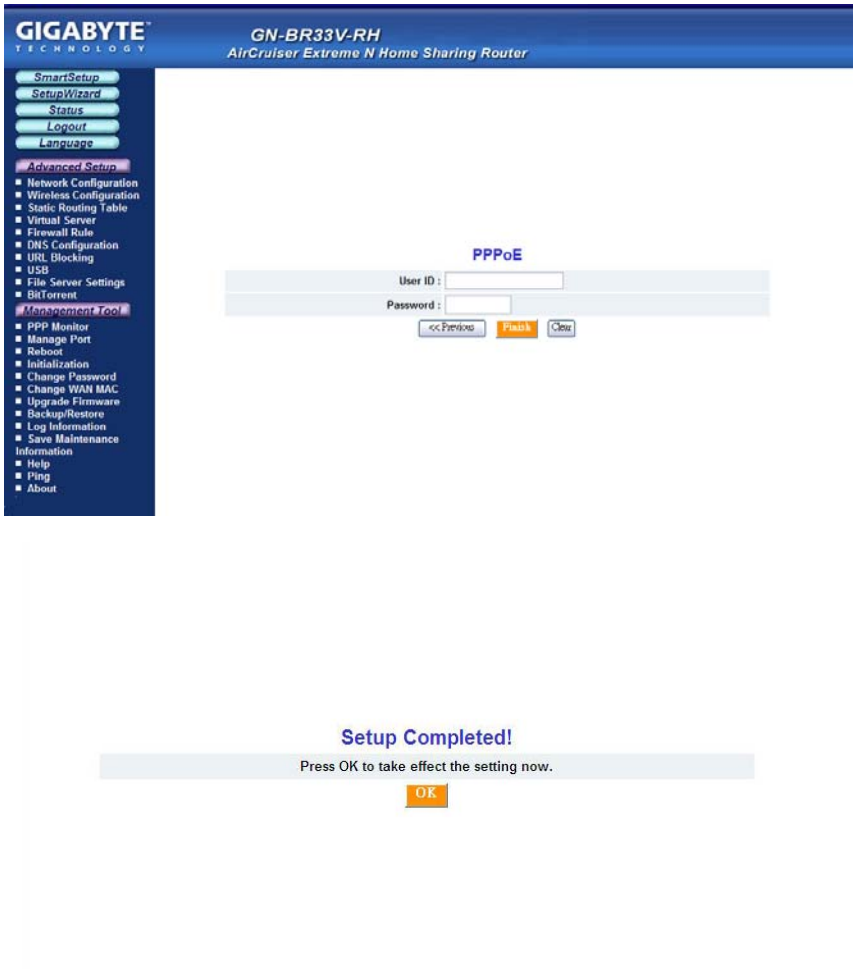
Dynamic IP Address: If your broadband ISP service is an 'always-on connection', but you do not have a static IP, please select this item, click the **Next** button and then go to Step 7 of this section.

Static IP Address: Common for Enterprise Internet connections. If your broadband ISP service is a 'fixed-connection' and your IP never changes, please select this item, click the Next button and then go to Step 11 of this section.

PPPoE Unnumber: Common in Japan and some European Countries. If you use PPPoE Unnumber, please select this item, click the **Next** button and then go to Step 15 of this section.

Connection Type - PPPoE

On the **PPPoE** screen, enter your User Name and Password as provided by your ISP. Click the **Finish** button to continue with setup.



The **Setup Completed** screen appears. Click the **Reboot** button to restart your router so that the settings take effect.

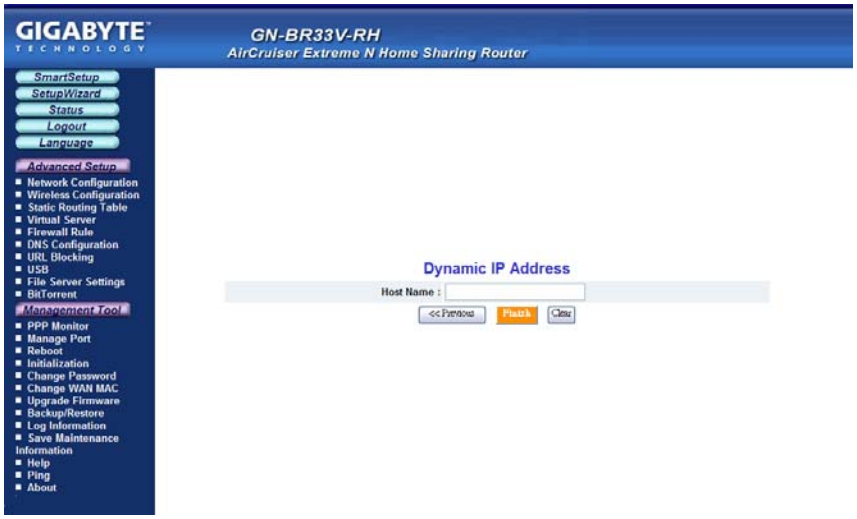
While the router is rebooting, the Router Restarting Screen will display the time remaining. Please be patient and let the router restart itself.

Restarting, 15 second(s) remaining...
The browser will automaticcally connect the Router after 15 seconds. If not, you can check the following HTTP address.
http://192.168.1.254/

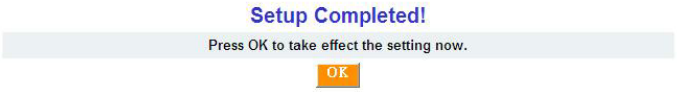
Once your router has successfully rebooted, it will load Router Welcome Screen. **Setup is complete.**

Connection Type - Dynamic IP Address

If you have selected **Dynamic IP Address** ISP Type, the Dynamic IP Address Screen will display, prompting you for the ISP information. Enter it and click the **Finish** button to continue with router setup.



The **Setup Completed** appears. Click the **Reboot** button to restart your router so that the settings take effect



While the router is rebooting, the **Router Restarting** screen will display the time remaining.

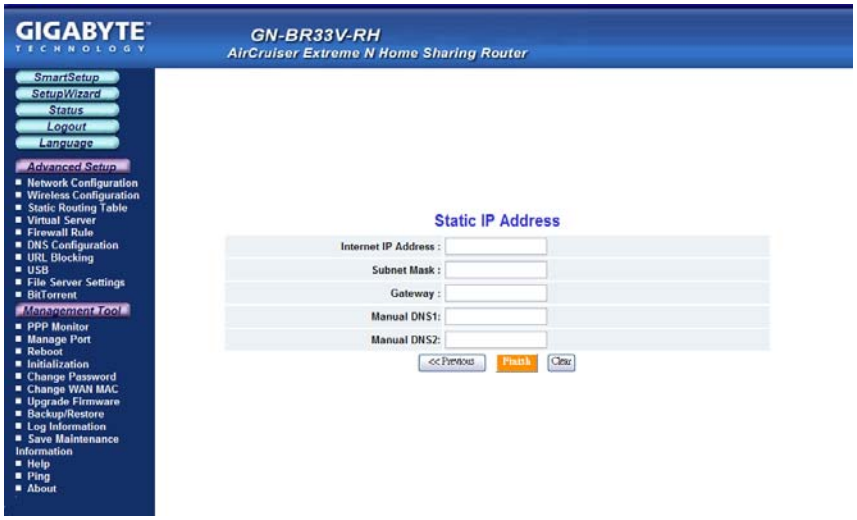
Restarting, 15 second(s) remaining...
The browser will automaticcally connect the Router after 15 seconds. If not, you can check the following HTTP address.
http://192.168.1.254/

Once your router has successfully rebooted, it will load Router Welcome Screen. **Setup is complete.**

Connection Type - Static IP Address

On the **Static IP Address** screen, type in the information provided by your ISP, and then click the **Finish** button to continue with router setup.

If your ISP has assigned you several IP addresses, please enter only one.



A screen with the message **Setup Completed** appears. Click the **Reboot** button to restart your router so that the settings take effect

While the router is rebooting, the **Router Restarting** screen will display the time remaining.

Restarting, 15 second(s) remaining...
The browser will automaticcally connect the Router after 15 seconds. If not, you can check the following HTTP address.
http://192.168.1.254/

Once your router has successfully rebooted, it will load Router Welcome Screen. **Setup is complete.**

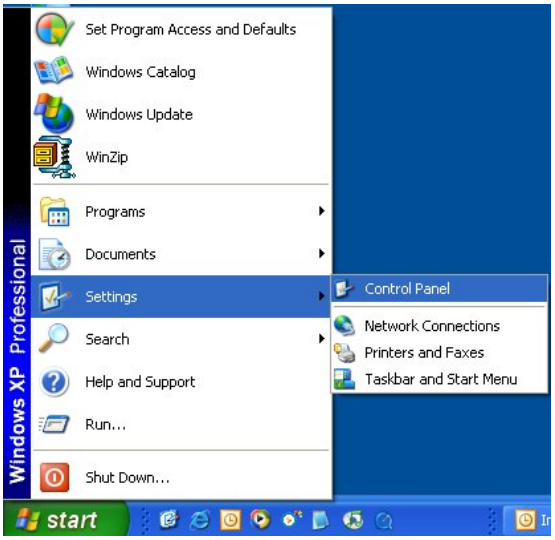
Appendix C
Configuring TCP/IP Settings

Computers access the Internet using a protocol called TCP/IP (Transmission Control Protocol/ Internet Protocol). Each computer on your network must have TCP/IP installed and selected as its networking protocol. If a Network Interface Card (NIC) is already installed in your PC, then TCP/ IP is probably already installed as well. Please follow the steps in this chapter to assure the correct TCP/IP settings. For advanced users who know the TCP/IP settings are already correct, you may skip this section and proceed directly to **Chapter 6 Advanced Setup**.

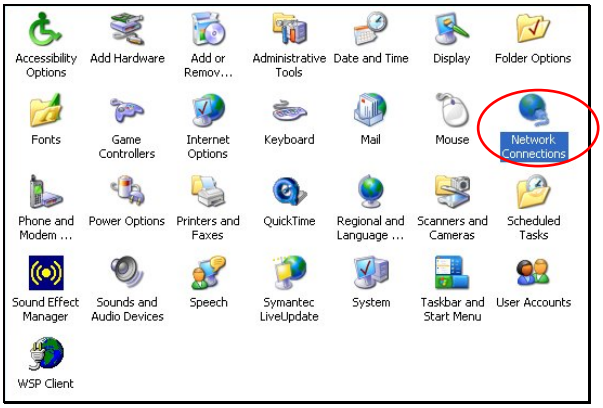
Enabling DHCP to Automatically Configure TCP/IP Settings

Each PC using accessing the wireless router must be assigned specific information about itself and resources that are available on its network. The simplest way to configure this is to allow the PC to automatically assign the IP by using a DHCP server. Follow the steps below to allow windows to automatically assign IP numbers for you.

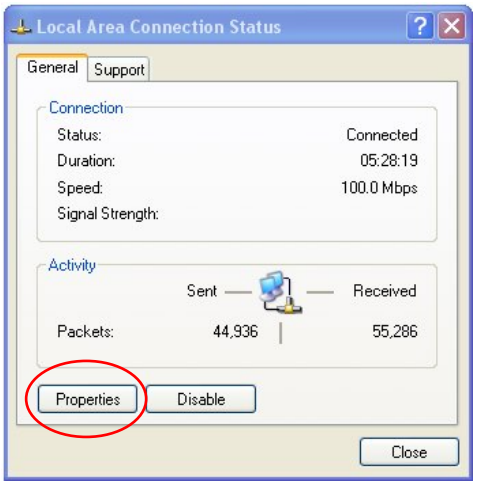
Step 1 Click the **Start** button. Select **Settings** and then click the **Control Panel** icon.



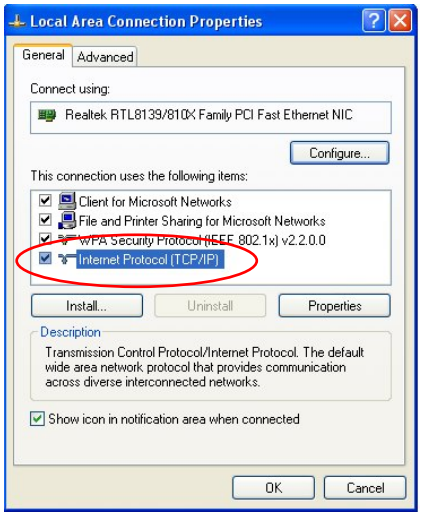
Step 2 Double-click the **Network and Dial-up Connection** icon.



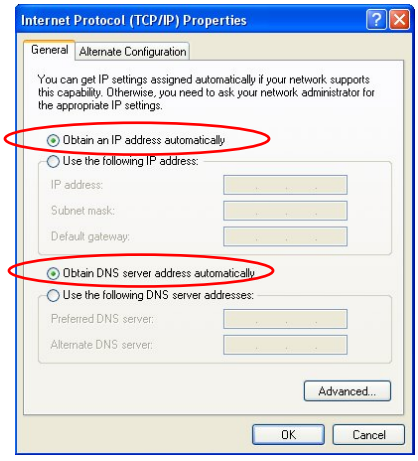
Step 3 Double-click the **Local Area Connection** icon, and then click the **Properties** button.



Step 4 The **Local Area Connection Properties** window will appear. For the applicable Ethernet / wireless adapter, make sure that there is a check in the **Internet Protocol (TCP/IP)** checkbox, then double-click on "**Internet Protocol (TCP/IP)"**



Step 5 Select both the **Obtain IP address automatically** and **Obtain DNS server address automatically**, options and then click **OK**. Continue clicking on the **OK** button to complete the PC configuration.


Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Windows will now automatically assign IP numbers to computers connecting to your GN-BR33V-RH.

Appendix D
Troubleshooting

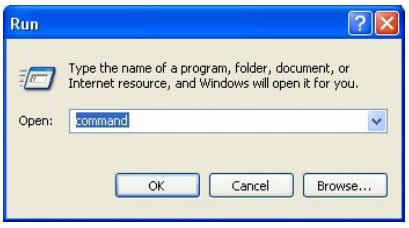
Problem 1: **Cannot connect to the Router's Web-based Utility.**

Response:

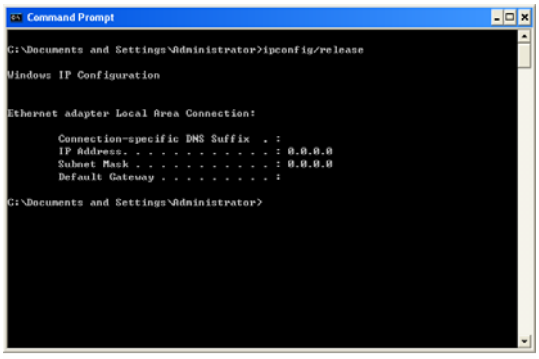
- Make sure that your Router uses DHCP, and make sure your PC's IP address is on the same subnet as the router.
- Check to see if your web browser is automatically detecting LAN settings.
- Try closing all web browsers and trying again.

Make sure that your Router uses DHCP, and make sure your PC's IP address is on the same subnet as the router.

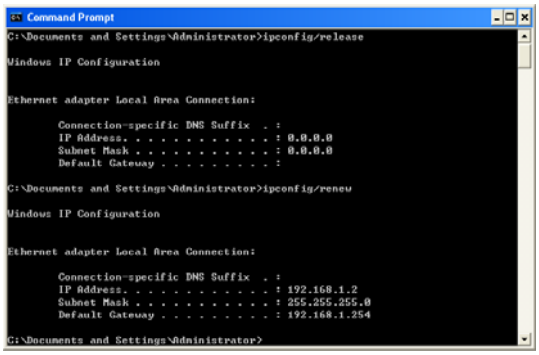
Step 1 Click the **Start** button. Select **Run**, then type "command". Press OK.



Step 2 At the command prompt, type "**ipconfig /release**" and press the **ENTER** key.


Command Prompt
C:\Documents and Settings\Administrator>ipconfig/release
Windows IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . :
IP Address. . . . . : 0.0.0.0
Subnet Mask . . . . . : 0.0.0.0
Default Gateway . . . . . :
C:\Documents and Settings\Administrator>

Step 3 At the next command prompt, type "**ipconfig /renew**" and press the **ENTER** key.

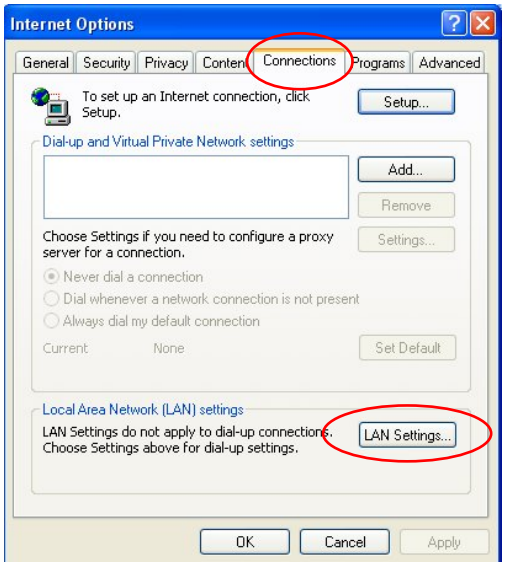

Command Prompt
C:\Documents and Settings\Administrator>ipconfig/release
Windows IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . :
IP Address. . . . . : 0.0.0.0
Subnet Mask . . . . . : 0.0.0.0
Default Gateway . . . . . :
C:\Documents and Settings\Administrator>ipconfig/renew
Windows IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . :
IP Address. . . . . : 192.168.1.2
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.1.254
C:\Documents and Settings\Administrator>

The default gateway represents the IP address of your GN-BR33V-RH, that is: 192.168.1.254. All computers accessing this Router MUST be in the same subnet (192.168.1.x, where x is anything between 1 and 253)
In the above example, the GN-BR33V-RH gateway shown above is 192.168.1.254, and the PC's IP address is 192.168.1.2

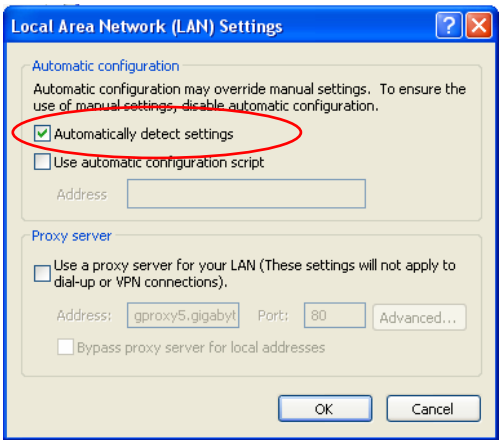
Check to see if your web browser is automatically detecting LAN settings

Step 1 Open **Internet Explorer.** From the menu select **Tools** and then click **Internet Options**.

Step 2 From the **Internet Options** window, click the **Connections** tab, and then click the **LAN Settings** button (see figure below).



Step 3 Now verify that none of the checkboxes have been ticked, and click on the **OK** button. Now you will be able to login to the Router and configure or change network settings.



Problem 2: I can't connect to the Internet

Response :

- Check that the power cord is connected properly, and the router's power LED is lit green.
- Verify that all the TCP/IP configuration settings are correct. (Problem 1 above)
- Check that your ADSL/Cable Modem is operating normally, and/or you have ISP service available.
- Check that all network cabling is properly connected.

Problem 3: **When I Configure WDS bridging, my Wi-Fi Protected Access (WPA) security is cancelled.**

Response: Wi-Fi Protected Access (WPA) and Wireless Distribution System (WDS) cannot be used at the same time.

If you need to secure a WDS network, use the Wireless Encryption Protocol (WEP) feature instead.

If you must use WPA, connect your base stations to a wired local area network (LAN).

Appendix E
Glossary

ADSL
Asymmetric digital subscriber line (ADSL) is a new modem technology that converts existing twisted-pair telephone lines into access paths for high-speed communication of various sorts.

Auto-MDI/MDIX
On a network hub or switch, an auto-MDI/MDIX port automatically senses if it needs to act as a MDI or MDIX port. The auto- MDI/MDIX capability eliminates the need for crossover cables.

Auto-negotiate
To automatically determine the correct setting. The term is often used with communications and networking

DHCP
The Dynamic Host Configuration Protocol (DHCP) is an Internet protocol for automating the configuration of computers that use TCP/IP. DHCP can be used to automatically assign IP addresses, to deliver TCP/IP stack configuration parameters such as the subnet mask and default router, and to provide other configuration information such as the addresses for printer, time and news servers.

DMZ
In computer networks, a DMZ (demilitarized zone) is a computer host or small network inserted as a "neutral zone" between a company's private network and the outside public network. It prevents outside users from getting direct access to a server that stores company data. Typically, the DMZ contains devices accessible to Internet traffic, such as Web (HTTP) servers, FTP servers, SMTP (e-mail) servers and DNS servers.

DNS
The Domain Name System (DNS) is a distributed Internet directory service. DNS is used mostly to translate between domain names and IP addresses, and to control Internet email delivery. Most Internet services rely on DNS to work. If DNS fails, web sites cannot be located and email delivery service will be suspended.

Dynamic IP Address
An IP address is automatically assigned to a user’s AP in a TCP/IP network typically by a DHCP server.

Firewall
A system designed to prevent unauthorized access to or from a private network. Firewalls can be implemented in both hardware and software, or a combination of both. Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially intranets. All messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria.

Gateway
A device, usually a Router, that connects hosts on a local network to other networks.

IP Address
Every PC on the Internet has a unique identifying number, called an IP Address. A typical IP address looks like this: 216.27.61.137

IPSec
IPSec stands for IP Security. It provides authentication and encryption over the Internet. It functions at Layer 3 and thus secures everything on the network. It has become a standard protocol used for virtual private networks (VPNs).

MAC Address
On a local area network (LAN) or other network, the MAC (Media Access Control) address is your computer's unique hardware number. Usually written as: 01:23:45:67:89:ab

MTU
The size in bytes of the largest packet that can be sent or received.

NAT
A technique by which several hosts share a single IP address for accessing to the Internet.

Ping (Packet Internet Groper)
A utility to determine whether a specific IP address is accessible. It works by sending a packet to the specified address and waiting for a reply. PING is used primarily to troubleshoot Internet connections.

SSID
SSID is the name representing the Router in WLAN.

PPPoE
Point-to-Point over Ethernet is a protocol for connecting remote hosts to the Internet over an always-on connection by simulating a dial-up connection.

Router
A device that forwards data packets along networks. A router is connected to at

least two networks, commonly two LANs or WANs or a LAN and its ISP network. Routers are located at gateways, the places where two or more networks connect.

Subnet Mask
A mask used to determine which subnet an IP address belongs to. An IP address has two components, the network address and the host address. Subnetting enables the network administrator to further divide the host part of the address into two or more subnets.

TCP/IP
TCP/IP (Transmission Control Protocol/Internet Protocol), the suite of communications protocols used to connect hosts on the Internet.

VPN
Virtual private networks are secured private network connections, built on top of publicly accessible infrastructure, such as the Internet or the public telephone network. VPNs typically employ some combination of encryption, digital certificates, strong user authentication and access control to provide security to the traffic they carry. They usually provide connectivity to many machines behind a gateway or firewall.

WAN
Wide Area Network, a communication network that covers a relatively broad geographic area, consisting of two or more LANs. Broadband communication over the WAN is often through public networks such as the ADSL or Cable systems, or through leased lines or satellites. To simplify it, please image network as a WAN.

WEP
WEP (Wired Equivalent Privacy) is a data privacy mechanism based on a 64/128-bit shared key algorithm, as described in the IEEE 802.11 standard.

Appendix F
Specifications

General	
Flash and SDRAM	4MB Flash and 32MB SDRAM
Standards	IEEE 802.3 (10BaseT), IEEE 802.3u (100BaseTX), IEEE 802.11b/g/n (Wireless)
Power	External; 5V DC, 2A
Operating Range	Wireless – Open space: 300m; Indoor: 100m
Wireless	
Frequency Band	2412 ~ 2484 MHz (subject to local regulation)
Modulation Technology	OFDM and DSSS
Modulation Techniques	64QAM, 16QAM, QPSK, BPSK, DBPSK, DQPSK, CCK
Data Rates	300, 270, 243, 216, 162, 135, 121.5, 108, 81, 54, 48, 36, 27, 24, 18, 13.5, 12, 11, 9, 6, 5.5, 2, 1 Mbps, auto fallback
Output power	Legacy mode: 20dBm @11b, 17dBm @11g; HT20 mode: 17dBm @MCS7/15; HT40 mode: 17dBm @MCS7/15.
Receive Sensitivity	Legacy mode: - 90 dBm @11b, - 74 dBm @11g; HT20 mode: - 73 dBm @ MCS7/15; HT40 mode: - 68 dBm @ MCS7/15.
Antenna	2 external dipole antennas
Regulatory and Environmental Compliance	
EMC certification	FCC part 15 (USA)
	CE (Europe)
Temperature Range	Operating: 0 ~ 55 degree C, Storage: -20 ~ 65 degree C
Humidity	10% ~ 85% Non-condensing
Software	
Roaming	Yes
Security	64/128 bit WEP; 802.1x, WPA, and WPA2
Routing Protocols	Dynamic, Static Routing with TCP/IP NAT, PPTP, PPPoE VPN Pass-Through (IPSec, L2TP) DHCP (Client & Server)
Management Utility	WEB Configuration for network link
Mechanical	
Packaging	Generic, Gigabyte, private labeling optional
LED indicator	Power/Status LED x 1 WPS/RF LED x 1 LAN Port LED x 4 WAN Port LED x 1
Gross Weight	238 g ± 5.0g
Dimension	216.0 x 136.0 x 26.0 mm ± 0.5mm

Appendix G
Warranty

Limited Warranty Statement (1-Year Warranty)

Thank you for purchasing the GIGABYTE Product. This limited warranty statement will provide you one year warranty starting from the purchase date. Of which if any defect is occurred due to accidents or any man-made factors, or any unauthorized torn-off or damage to GIGABYTE's sticker on the product, GIGABYTE Technology will not provide after-sale services, such as:

- Products are damaged due to any violation of instructions on user manual.
- Hardware is damaged due to inappropriate assembling.
- Products are damaged due to the use of illegal accessory.
- Products are damaged due to parts disassembling without authorization.
- Products are damaged due to exceeding environment limits.
- Products are damaged due to unexpected external force.
- Products are damaged due to nature disasters.
- Products are copies or illegally smuggled goods.

Appendix H
Regulatory Information

CE Mark Warning: This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Europe - Declaration of Conformity

CE	This device is a 2.4 GHz low power RF device intended for home and office use in EU and EFTA member states. In some EU / EFTA member states some restrictions may apply. Please contact local spectrum management authorities for further details before putting this device into operation.

GIGA-BYTE Technology, Inc. declares that the product: **Wireless Broadband Router Model Number: GN-BR33V-RH** is in conformity with and in accordance with the European Directive of EMC, 89/336 EEC for the following sections:

EN 61000-3-2, EN 61000-3-3, EN 55024, and EN 55022 Disturbances and Immunities

GIGA-BYTE Technology, Inc. also declares the conformity of above mentioned product with the actual required safety standards in accordance with LVD Directive 73/23 EEC:

EN 60950 Safety

In accordance with R&TTE Directive 1995/5/EC, Part 17: Requirements for Operation in the European Community, GIGA-BYTE Technology, Inc declares the conformity of the above mentioned products for:

EN 300 328-2 V1.2.1, ETSI EN 300 328-1：V1.3.1, EN 301 489-1, and EN 301 489-17 Technical Requirements for Radio Equipment

Countries of Operation and Conditions of Use in the European Community
The user should run the configuration utility program provided with this product to check the current channel of operation and confirm that the device is operating in conformance with the spectrum usage rules for European Community countries as described in this section. European standards dictate a maximum radiated transmit power of 100mW EIRP and a frequency range of 2.400 - 2.4835 Ghz.

Operation using 2.4 GHz Channels in France
2.4 GHz Bande: les canaux 10, 11, 12, 13 (2457, 2462, 2467, et 2472 MHz respectivement) sont complétement libres d'utilisation en France (en utilisation intérieur). Pour ce qui est des autres canaux, ils peuvent être soumis à autorisation selon le department. L'utilisation en extérieur est soumis à autorisation préalable et très restreint. Vous pouvez contacter l'Autorité de Régulation des Télécommunications (http://www.art-telecom.fr) pour de plus amples renseignements.

Please check ART's web site for latest requirements for use of the 2.4GHz band in France: http://www.art-telecom.fr/eng/index.htm.
When operating in France, this device may be operated under the following conditions:
Indoors only, using any channel in the 2.4465-2.4835 GHz band.

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Appendix I
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4. The udhcpd DHCP client/server implementation
5. The rp-pppoe PPPoE client implementation
6. The pppd PPP daemon implementation
7. The ez-ipupdate ddns implementation

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Availability of Source Code

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